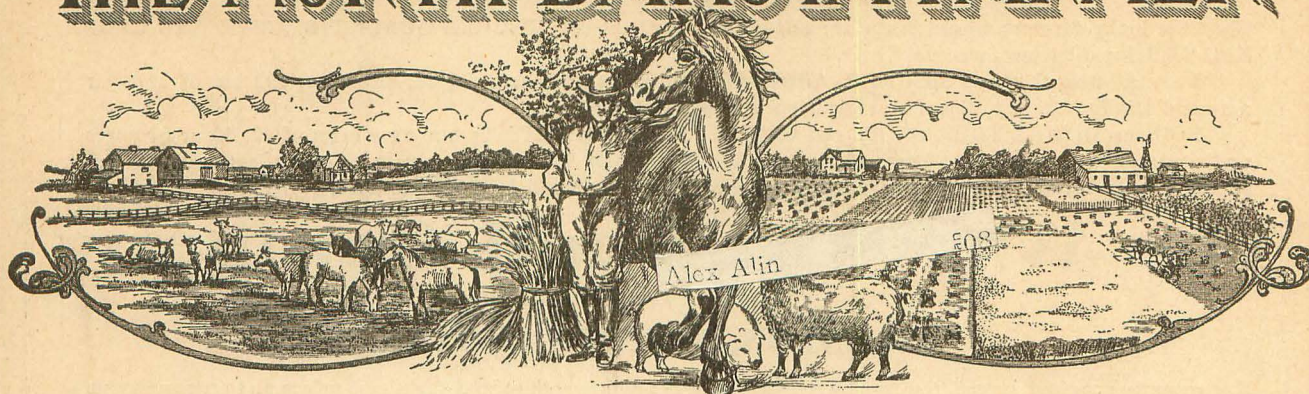


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THE NORTH DAKOTA FARMER

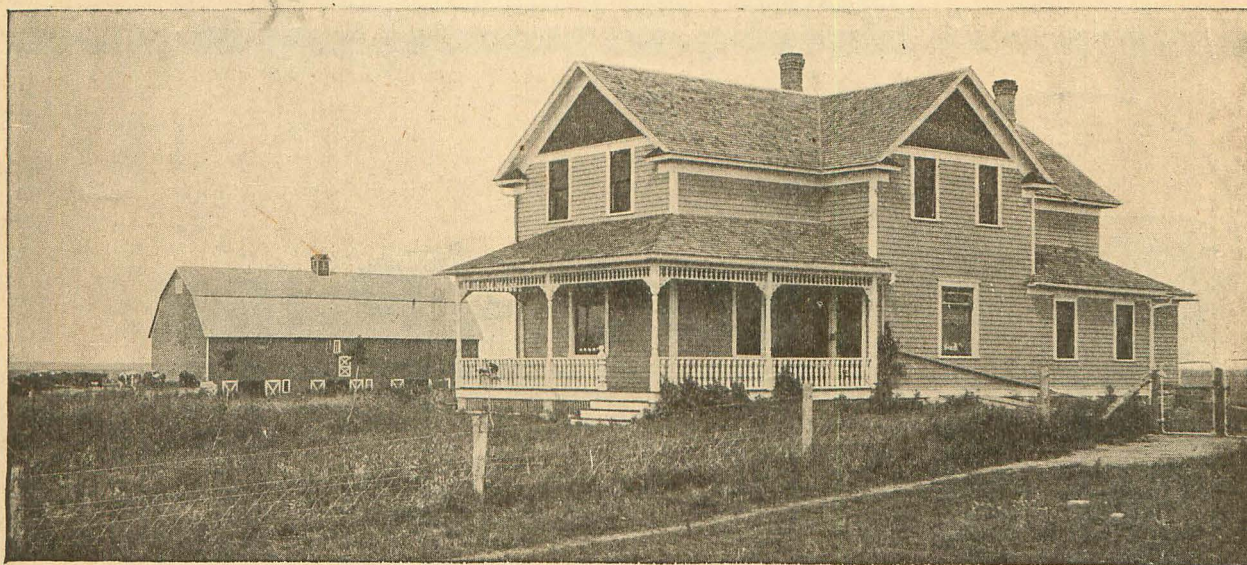


WE CATER ONLY TO THE INTELLIGENT FARMER

Vol. 9, No. 3
LISBON, N. D.

SEPTEMBER 15, 1907.

50 Cents a Year
FARGO, N. D.



Home of Jacob Walters, Anselm, N. D. Ten Years Ago Empty Handed; Today worth \$60000

"In response to your request asking me to give you a few facts regarding my success in North Dakota: About ten years ago, I came to Ransom county practically empty-handed. I purchased a half-section of land at a reasonable price and on easy terms and with a few horses and but little machinery I started to farm. With hard work and careful management I gradually increased my property. This, of course, was due also to the great fertility of our excellent soil, for it is useless for a man to work unless he gets returns for his labor. I believe in diversified farming and I have always made it a practice. I consider my land and personal property worth in total value \$60,000. Of course, I still owe a few thousand dollars, but that does not worry me. I have a large tract of tame hay seeded down, which does well."

978.4
N814
Graham

\$2,000,000.00

This great sum is being expended by the United States Government in North Dakota in the construction of the Lower Yellowstone, Buford-Trenton and Williston Irrigation Projects.

MR. FARMER, DO YOU KNOW?

That the lucky farmers whose lands are under these projects are INSURED AGAINST DROUTH AND CROP FAILURE for all time to come?

Do you know they are ASSURED, ANNUALLY, of 50 bu. of wheat, 75 bu. of barley, 100 bu. of oats per acre and alfalfa, timothy, clover and sugar beets in proportion?

YOU can INSURE YOUR CROPS and GET THE SAME RESULTS, by buying a farm of 40. 60 or 80 acres under one of these Projects. They can be bought now at from \$15 to \$25 per acre. This is less than you are paying for dry farms. Five years from today the same land will sell for \$100 per acre.

The Williston Land Company
(INCORPORATED)

WILLISTON, NORTH DAKOTA,

Has recently acquired several thousand acres of this land and are selling it at the above prices and on easy terms of payment.

Come out and look it over NOW. You will find the Company

LONG-ESTABLISHED.

RESPONSIBLE.

RELIABLE.

W. B. OVERSON, President.

JOSEPH W. JACKSON, Vice Pres.

E. R. BROWNSON, Sec'y.

R. M. CALDERWOOD, Treasurer.

E. G. GREENUP, General Manager.

Responsibility of Stockholders \$50,000.00.

Illustrated Booklet, Government Maps and All Information Desired, Free For the Asking.



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Manufactured by

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Write for our Collection of Architectural Designs and Color Combinations.

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PAY DAY

What Does It Mean to You?

No matter what your position may be, whether day laborer or office manager, if you are in that discouraged line of men who get the same pittance week after week without prospect of anything better, it is time you appealed to the International Correspondence Schools. For 15 years they have been qualifying dissatisfied workers for better positions and higher salaries. No matter what your circumstances are, they will qualify **YOU** for a better position, a higher salary, and a safe future. The way is plain, easy, and sure for earnest men. It puts you under no obligation to find out how we can do this for you. Simply send us a postal card requesting information. State the occupation you wish to rise in. Can you afford to neglect an opportunity for advancement?

INTERNATIONAL CORRESPONDENCE SCHOOLS
BOX 799, SCRANTON, PA.

\$6,000 BUYS 300 ACRE FARM

In Nelson county, North Dakota. 150 summer-fallow ready for crop; 140 acre pasture, sheep fence, with 25 acres of young natural timber; 10 acres meadow, more could be broken. House, barn and good water. Farm lies on Stump Lake. \$1,000 down, balance on long time at 5 per cent.

EASTGATE BROS.,

Larimore, - - - N. D.

WE SELL FARMS

Several splendid farms in mild Virginia are now on our books and will be sold at reasonable prices.

There is no finer climate in the country than that of historic Virginia and no finer farms than those we are now offering.

DAIRY FARMS, POULTRY FARMS, STOCK FARMS.

The properties we are handling are situated within from one to two hours of the national capital at Washington, near schools, churches and stores.

Perfect shipping facilities and unlimited markets. New York, Philadelphia, Baltimore and Washington reached in a few hours.

Send for descriptive list or better yet, call on us while en route to the Jamestown fair and let us show you our offerings.

STEPHENSON & RAINEY,

Real Estate Dealers,
Star Building, WASHINGTON, D. C.


THE CAMPBELL METHOD

For successful farming in the dry seasons and for doubling the crops in years of abundant rainfall. Drouth banished without irrigation, no crop failures, no betting against the weather. System adopted with great success by practical farmers all over the West. Prepare now for next year. Circulars free, or 10 cents for Campbell's Soil Culture Almanac, which tells all about it.


Agents Wanted.

CAMPBELL SOIL CULTURE CO.,

Lincoln - - - Nebraska



WOOL



You Will Be Gainer

If you ship us all your wool, as we pay highest market prices, and, if you so order, keep your goods separate, until you are satisfied. We charge no commission. Albert Lea Hide & Fur Co. 224 Market Street, Albert Lea, Minn.



HAY STACK COVERS

Save the Hay and Grain.
Write for prices on all kinds of Canvas goods.

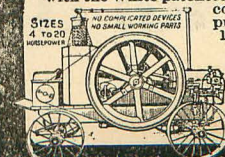
AMERICAN TENT & AWNING CO.
307-9-11 Washington Av. N. MINNEAPOLIS, MINN.

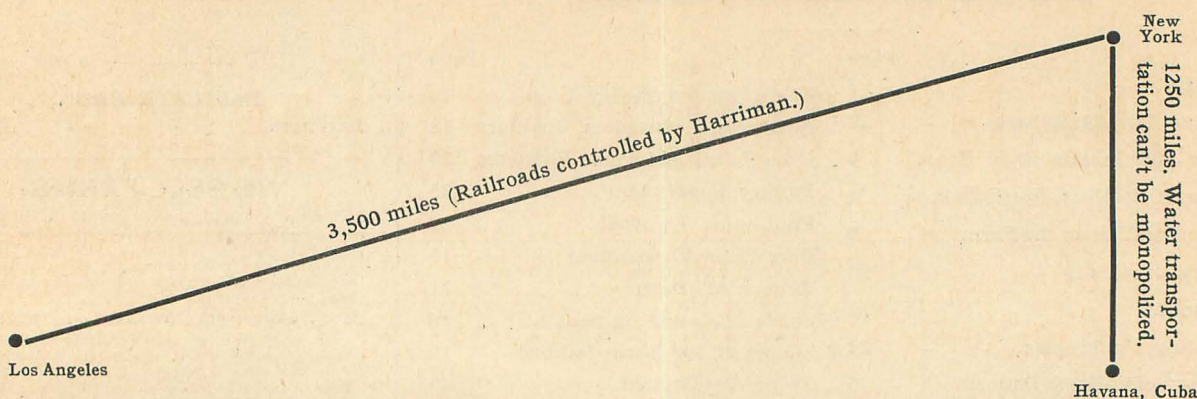
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Portable and Stationary Gasoline Engines
"The Old Reliable Line"

An engine built for long heavy service and one that has stood a ten year test of time. For threshing and other farm use the White is the ideal power. Can be run at 1/2 the expense of steam. All parts interchangeable and easily adjusted. Four pairs of water cool the 20 horse power size with the White patented cooler. Special oil cooled engine for pumping and other light work. More than 100 designs to choose from.

Globe Iron Works
Menomonie, Wis.
Box 79





Cuba vs. California

COMPETITORS IN CITRUS FRUITS.

Cuba

Maximum temperature 98, (6 yrs.)
Minimum temperature 46, (6 yrs.)
No Irrigation.
No frosts possible.
No earthquakes.
1250 miles to New York.
Water transportation.
Three days in transit to New York.
No jerking and jaring of fruit.
Even temperature in transit.
Cuba to Europe 3500 miles, water tran.

California

Maximum temperature 109.
Minimum temperature 28.
Irrigation necessary.
Frost occasionally.
Earthquakes frequently.
3500 miles to New York.
Refrigerator cars.
Fourteen days in transit.
Constant jerking and jaring.
Uneven temperature in transit.
California to New York, 3500 by rail.

Oranges grow wild in Cuba.

Orange groves in bearing in California are worth \$500 to \$1500 per acre. What will they be worth in Cuba?

Write for Pamphlet and maps. All about Cuba.

North Dakota Company,

Gray Block,

VALLEY CITY, NORTH DAKOTA

THE NORTH DAKOTA FARMER

Vol. 9, No. 3

LISBON and FARGO, N. D., SEPTEMBER 15, 1907

50 Cents a Year

OF GENERAL INTEREST

ALFALFA

By L. R. Waldron, Supt. Dickinson Sub-Station

The successful culture of alfalfa at the Dickinson Sub-station has not been as marked as has the culture of small grains, forest or even fruit trees. This lack of success is due to a certain combination of soil and climatic conditions coupled with a lack of knowledge of methods needed to meet such conditions. There are soils in western North Dakota that will grow alfalfa with success with the climate that we have and with ordinary methods of culture. Such a condition of affairs, however, does not hold upon the sub-station farm. Where alfalfa has been grown successfully with only ordinary methods, it has been observed the soil contains much organic matter or it is soil of such a nature that the alfalfa plants become self-inoculated with the nodules or tubercles by the beginning of the second season. Those who have made any study of alfalfa know that it is necessary that certain enlargements be found upon the roots of the alfalfa plants in order that the alfalfa crop may be a success. Over large areas of territory, especially in more humid regions, the alfalfa plants acquire these nodules or enlargements naturally and in a short time. In other areas, artificial methods are needed in order that the alfalfa roots may develop these nodules in the first or at the beginning of the second season. It is evident that there are extensive areas in western North Dakota where the nodules will not easily be produced. The soil upon the Dickinson Sub-station farm is of this class.

The alfalfa plants, in a field where the nodules are absent, are yellow, sickly-looking and stunted and they will remain in this condition until the roots acquire the nodules. As long as the alfalfa plants are yellow and stunted, instead of having a green and thrifty look, the alfalfa is practically a failure.

Methods of Inoculation

Fortunately it is possible to so treat the soils that the nodules will develop upon the alfalfa roots so after the seedling alfalfa makes its appearance above the ground. Then the alfalfa plants, other conditions being favorable, will be green and vigorous from the start. Either the soil or the seed may be treated. There are companies which sell so-called "pure cultures" of the organism which brings about the nodules. These have almost uniformly proven to be failures. The Department of Agriculture have prepared and sent out free of charge, large numbers of pure cultures of the organism. These have been more successful than the commercial cultures. They have been tried for two seasons at the Dickinson Station but for some reason, either thru the fault of the cultures or of ourselves, their use has not been attended with success.

Another method of developing the nodules or of "inoculating the alfalfa," as it is called, is to take some dirt from an inoculated alfalfa field, in other words, a successful alfalfa field; and sow it upon the new alfalfa field which is not inoculated. There are disadvantages in this method. One is liable to introduce plant diseases and noxious weeds and again if there are no nearby successful alfalfa fields, the dirt method is apt to be costly. However, the dirt method is simple. All that is to be done, is to harrow in well about four or five hundred pounds of alfalfa dirt to the acre which should be done when the soil is damp. All application of well-rotted manure to the alfalfa field will hasten the inoculation. Sowing alfalfa seed continually upon the same soil will also bring about inoculation but this is an expensive and time-wasting method. When inoculation is once brought about, perhaps the greatest difficulty of successful alfalfa growing is overcome.

The question of sufficient water supply is an important one. Generally, water sufficient to make a maximum crop is not present. Is there enough

water to make the growing of alfalfa a paying crop? This question can not be answered definitely as yet. If the ground is not well prepared and if the seed is sown broadcast with a nurse crop, it is more than likely that the alfalfa would be a failure, even if the ground were inoculated. When seeded with a drill and without a nurse crop, there will be more moisture for the alfalfa and theoretically we have an abundance of moisture for a good alfalfa crop. Unfortunately the conditions in an alfalfa field favor a large waste of moisture. If the plants are too thick, with too little water for good growth, they will all be stunted in size and the crop will be smaller than if fewer plants made full growth.

Alfalfa Grown in Rows

A possible way to adapt the number of alfalfa plants to the moisture in the soil, is to sow the alfalfa seed in rows, say twenty or thirty inches apart. It may be desirable or even necessary to cultivate this alfalfa some the first season in order to give it a good start and to keep back the weeds. Farmers may not take kindly to the idea of cultivating a hay crop. However the results in this case may fully justify the means. At the Dickinson Sub-station, third-season alfalfa grows in 18-inch rows stood 22 inches high June 15 and the tops of the plants were so large and bushy that no part of the ground between the rows could be seen. This alfalfa was at least 500% better than adjoining alfalfa sown broadcast. This case may have been exceptional but it is apparent to the writer that the alfalfa crop in rows will be much greater than that sown in the ordinary manner. Will it be enough greater to warrant the extra cost and care? This is a question which must be decided largely by the individual farmer. For successful seed production, it will probably be quite necessary to sow the alfalfa in rows.

Successful Alfalfa

Can alfalfa be grown successfully in western North Dakota? It undoubtedly can if the soil is inoculated and it is grown in say 20-inch rows. This statement applies to the ordinary upland prairie. As stated before, there are

certain restricted areas that seem to be naturally adapted to alfalfa. Whether it will be a paying crop is a question that farmer must answer for himself. The climate, aside from rainfall, is undoubtedly favorable for two crops each season. The cuttings come when showers are not very liable. This increases the chance of the forage being of good quality.

CORN IN NORTHERN NORTH DAKOTA

By E. T. Judd

I have been a lover of corn from a time since memory runneth not to the contrary, more especially in this green state, nicely boiled on the ear, which taste no doubt was inherited from an ancestry dating back to the time when the old Pequot Indians saved the early settlers of the Plymouth

tention in sufficient quantities to pay in several ways. I have found that seed that I have saved myself has been marketed earlier and more robust in its growth, variety and productive qualities. For table use I would recommend the Peep-O-Day sweet corn, originated and for sale by the N. K. & Co., seedmen of Minneapolis, as being earliest and most sure of all the sweet corn. I also think the Improved Black Mexican a splendid corn if the season is favorable.

For field varieties I have tried the mixed Squaw corn, early and sure but not desirable an account of its dwarf nature and small yields. The Triumph I have not had good success with, tho it is highly recommended by growers elsewhere in the state. The Gehu originated by the Oscar Will Co., of Bismarck, is a yellow flint corn of good qualities,

der, and secondly but by no means the least important is the fact of getting foul ground cleaned up and in shape for a crop of wheat. Jim McPike raised in '06, 80 acres that he says paid him well in two ways—feed and cleaning the land. Samples of corn raised by him can be seen in town. Alex Currie has raised corn several years, not so much for any primary profit, but he says it beats summer fallow in preparing ground for wheat. For the same reason, John Ed. Knight, democratic nominee for state representative in 1906, who lives 40 miles north of Cando, and within 1 mile of the International boundry, raised 40 acres of corn of above named varieties, last year, that he claimed would make 35 to 40 bushels of corn to the acre. Numerous others have raised small areas of corn in the past, that the acreage in corn for this county will be much increased in 1907 is assured, will be evident by the fact that in addition to the above named farmers who will increase their acreage. The following progressive farmers will try their hands: M. F. Powell, to the extent of 100 or more acres; Jack Salmon, 80 acres; W. F. Canfield, 80 to 100 acres; C. J. Lord 100 acres; and many others are trying to make up their minds that it will pay. It is hard to get a North Dakota farmer to experiment without there is something in sight, so much for facts, now for a theory or two.

In 1884 I was in Jackson county, Minn., when they harvested their first good crop of corn and not many acres at that, and it was no better than was produced here last season. Now that section which is close to Iowa line is considered as being in center of the corn growing belt of the United States and is largely dependent on it for its money producing crops, and I believe that most of us who are now experimenting with corn will see it occupying the same position here in the rotation of crops as it does in southern Minn. now. That it will become adapted to our shorter seasons is only a question of time and the selection and survival of the fittest. That we can shorten the time required for ripening I believe is immediately possible, as heretofore about the only way we had of planting was to use our common seed drills by reason of which we could only cultivate one way. By the use of the improved check row corn planters and cultivating two ways, I think it possible to hasten the ripening process several days. Heretofore corn has been left until the last thing before planting. I have found it does the best when planted about the 15 to 20th of May. A day or



A Corn Field in Ward County, N. D.

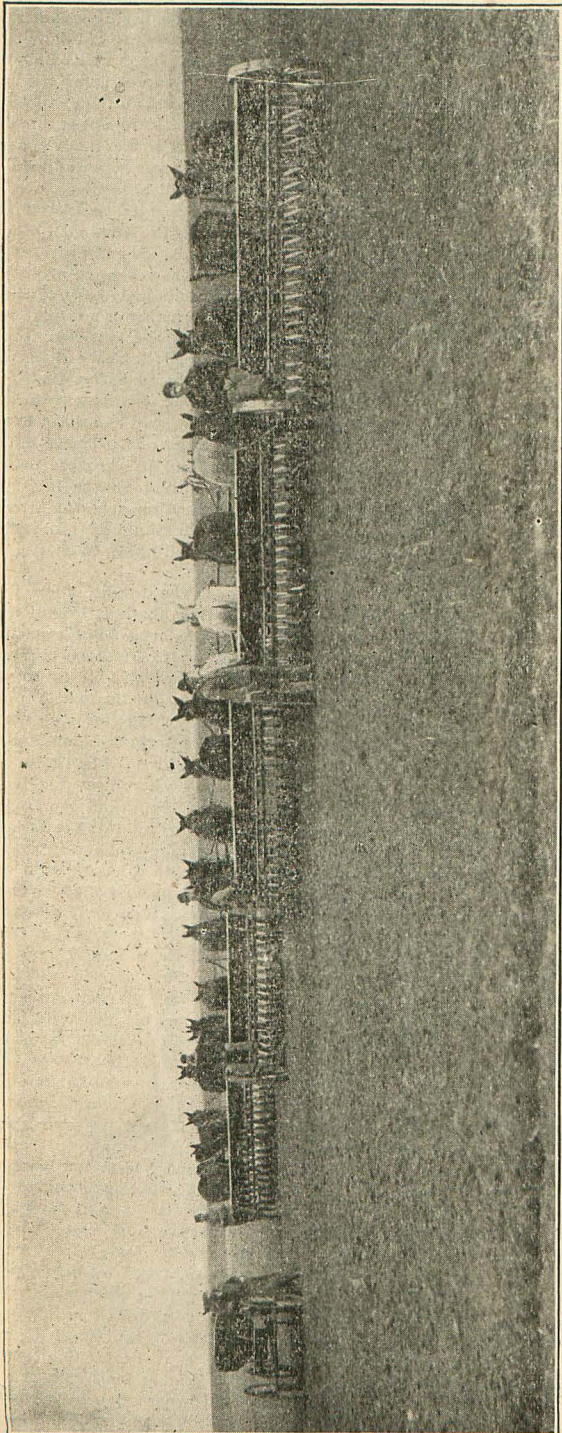
Rock period from starvation, by furnishing them supplies of corn or as they called it Maize.

I naturally missed this important factor of our food supply when I came to North Dakota and for several years the only source of supply was the tin can kind. For about twelve years, however, I have been able to raise more or less every year, and was long ago convinced that we should eventually be able to raise corn as a profitable crop in this county. For the last eight years I have been experimenting with various kinds in order to find out if possible which variety would best meet our requirements. The results have been more or less promising and satisfactory until I think that I have found varieties that any one n grow with proper care and at-

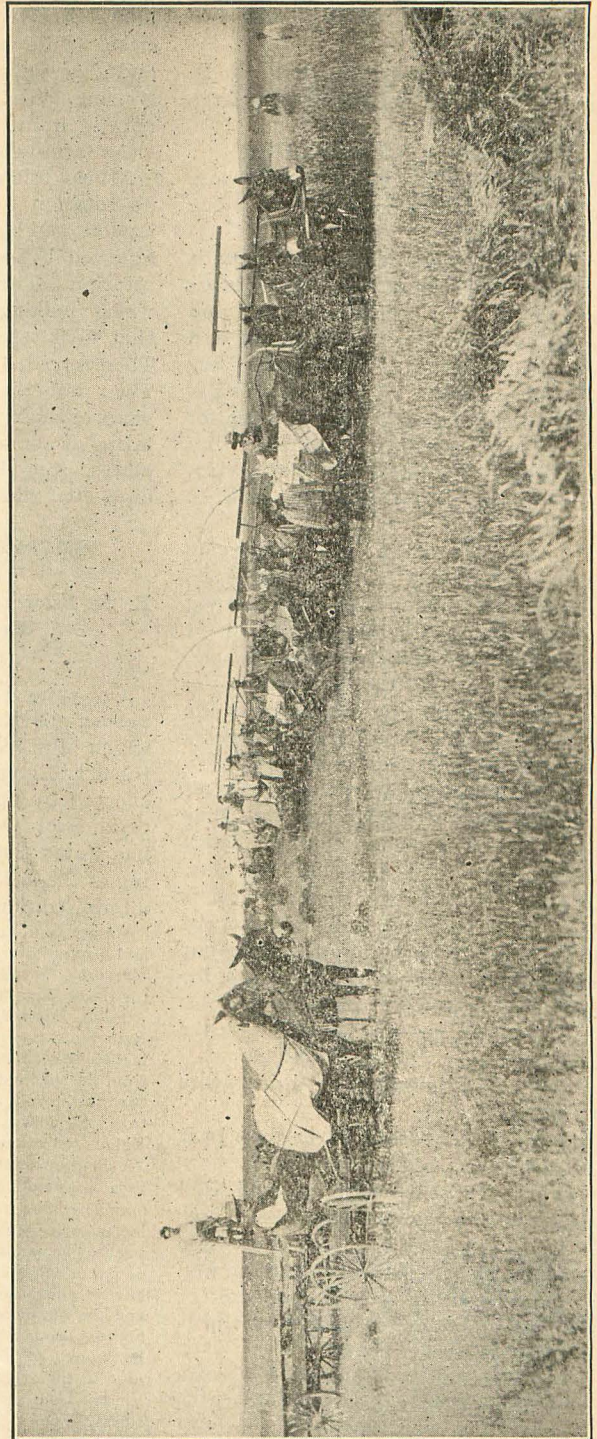
and has matured good seed for several years. The Northwestern Dent will I believe be the corn of the future for northern North Dakota, and it matured good seed last year. This corn has a good stalk, medium sized, ear set well up on stalk, kernels, when matured are of reddish or smoky color, rich in the properties that make a good corn. These varieties of corn can be obtained in quantities from above named firms and also from Fargo Seed Co., Fargo, N. D., and no doubt from others.

That corn will grow and that it pays to grow it can be proven by experience of others than myself. Conyes Bros., have raised crops for two years, last year having about 60 acres. They consider it profitable for two reasons. In the first place it makes a large quantity of good fod-

two to plant corn will make no difference in the yield of barley, flax, or oats which are usually being sown about that time but a week or ten days later for planting corn will likely be the loss of the crop. By raising corn we greatly increase our supply of winter fodder. We clean up our ground and put it in best possible condition for following crop of wheat. We can raise more stock, which means more fertilizer for the farm, which will increase the fertility of the soil, and which we must look after, and by planting corn first on manured



Seeding and Harvesting Scenes Near Eordulac, Foster County, N. D.



land we lessen the chance of an overgrowth of straw when seeded to grain, and the consequent breaking down or rusting of straw causing a failure in seed which frequently happens when sowing grain directly after the application of manure to the ground. The history of the older states has been first wheat, then corn, then stock, and then increased value of land. A crop of corn properly taken care of will make a large quantity of the best *kind of milk* producing feed. A lot of cows fed on this feed in winter will make lots of milk, which will produce fine cream.

CROP ROTATION ON THE FARM

A patron of this paper, rotates N. D. land to keep soil good, and gets large yield, as follows.

Rotate in Following Order

Farm should be divided into separate fields, so as to not have all in any one kind of crop.

Wheat—1 year—seed in it 5 pounds Medium Red Clover and 7 pounds timothy per acre; drill wheat north and south to let sun in to Clover, on well prepared seed bed. Drill clover very shallow crossways. Top dress with Manure Spreader to add more bacteria for Clover or for Alfalfa, in addition to inoculating Clover or Alfalfa with Nitro-Culture—get Nitro-Culture free of U. S. Gov.

Clover and timothy hay—1 or 2 years (1 year preferable). Or, if Blue Grass pasture is to follow, then when seeding the Red Clover and timothy add in 14 pounds or more Blue Grass seed per acre, and after the Red Clover and timothy are harvested for one or two years the Blue Grass should be pastured 3 years more, or longer.

Corn—1 year following the Red Clover and timothy, or following the Blue Grass. Seed cowhorn turnips, dwarf essex rape, Canada field Peas, or oats, in corn for Cover Crop when corn is "laid by" if next crop is to be wheat, but if next crop is to be anything else but wheat then seed rye for Cover Crop, for rye makes best Cover Crop.

Wheat—1 year—seed in it Red Clover and timothy, as above described.

Clover and timothy hay—1 or 2 years (1 year preferable).

Corn—1 year—seed Cover Crop in it as above described.

Wheat—1 year—seed rye and Red Clover in it for Cover Crop.

Alfalfa—3 years or more. Best time to seed Alfalfa is July 1st to 15th on well prepared seed bed after an early crop of oat and Canada Pea hay (two-thirds grown) has been removed.

Top dress each field every few years with Manure Spreader, (every year is better). Use Red Clover, etc., to add humus, to hold land together, and to prevent getting too loose, dusty and non-productive, and to protect against both drouth and too much rain. Use only best, clean, tested seeds.

If full crop of Red Clover or other Legumes be plowed under for Green Manure, should be done early when two-thirds grown, then follow quick with Cover Crop to cover land during fall and winter, land not to be left uncovered after plowed, or after crop is removed, because more plant food is lost by surface erosion and in drainage water, than by the crop itself. No summerfallow for that robs land.

Crop out to straight edges at roads and

lines. Keep roads and lines mowed out close. Pull and burn all Mustard, and destroy all wild oats, foul stuff, Noxious Weeds and pests soon as they appear from time to time. Do good clean farming.

Wheat followed by oats or barley is no rotation. But wheat, oats or barley followed by Clover or Peas, and that followed by corn, makes good 3 year rotation. Then wheat, clover, corn, wheat; making 7 years in all. Then rest that field to Alfalfa 3 years or more. Then repeat 6 years rotating as above. Then rest that field to Blue Grass 3 years or more. Then repeat 6 years rotating as above. Ditch or tiledrain wet places. Supply phosphorus, potassium, lime, etc., where needed.

IRRIGATION IN NORTH DAKOTA

E. R. Brownson, Sec. Williston Water Users' Association

(Second Paper)

On June 17th, 1902, Congress approved the National Reclamation Act, which President Roosevelt considers the act of greatest national benefit ever enacted by Congress, with the one exception of the Homestead Law. He has stated that he considered the signing of the act the crowning effort of his administration. The text is here given:

An act appropriating the receipts from the sale and disposal of public lands in certain states and territories, to the construction of irrigation works for the reclamation of arid lands.

Be It Enacted, by the Senate and House of Representatives of the United States of America, in Congress assembled, that all moneys received from the sale and disposal of public lands in Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington and Wyoming, beginning with the fiscal year ending June 30th, 1901, including the surplus of fees and commissions in excess of allowances to Registers and Receivers and excepting the five per centum of the proceeds of the sales of public lands in the above states set aside by law for educational and other purposes, shall be and the same are hereby reserved, set aside and appropriated as a special fund in the Treasury, to be known as the "Reclamation Fund," to be used in the examination and survey for and the construction and maintenance of irrigation works for the storage, diversion and development of waters for the reclamation of arid and semi-arid lands in the said states and territories and for the payment of all other expenditures provided for in this act; provided, that in case the receipts from the sale and disposal of public lands other than those realized from the sales and disposal of lands referred to in this section are insufficient to meet the requirements for the support of agricultural colleges in the several states and territories under the Act of August 30th, 1890, entitled "An Act to Apply a Portion of the Proceeds of the Public Lands to the More Complete Endowment and Support of the Colleges for the Benefit of Agriculture and the Mechanic Arts. Established under the Provisions of an Act of Congress Approved July 2nd, 1852," the deficiency, if any, in the sum necessary for the support of the said colleges shall be provided for from any moneys in the Treasury not otherwise appropriated.

Sec. 2. That the Secretary of the Interior is hereby authorized and directed to make ex-

aminations and surveys for and to locate and construct as herein provided irrigation works for the storage, diversion and development of waters, including artesian wells, and to report to Congress at the beginning of each regular session as to the results of such examinations and surveys, giving estimates of all contemplated works, the quantity and locations of the lands which can be irrigated therefrom and all facts relative to the practicability of each irrigation project; also the cost of works in process of construction, as well as of those which have been completed.

Sec. 3. That the Secretary of the Interior shall, before giving the public notice provided for in Sec. 4 of this Act, withdraw from public entry the lands required for any irrigation work contemplated under the provisions of this act and shall restore to public entry any of the lands so withdrawn when, in his judgment, such lands are not required for the purposes of this act; and the Secretary of the Interior is hereby authorized at, or immediately prior to, the time of beginning the surveys for any contemplated irrigation works, to withdraw from entry except under the homestead laws, any public lands believed to be susceptible of irrigation from said works; provided, that all lands entered and entries made under the homestead laws within areas so withdrawn during such withdrawal shall be subject to all the provisions, limitations, charges, terms and conditions of this act; that said surveys shall be prosecuted diligently to completion and upon the completion thereof and of the necessary maps, plans and estimates of cost, the Secretary of the Interior shall determine whether or not said project is practicable and advisable and if determined to be impracticable or unadvisable he shall, thereupon, restore said lands to entry; that public lands which it is proposed to irrigate by means of any contemplated works shall be subject to entry only under the provisions of the homestead laws in tracts of not less than 40 nor more than 160 acres and shall be subject to the limitations, charges, terms and conditions herein provided; provided, that the commutation provisions of the homestead laws shall apply to entries made under this act.

Sec. 4. That upon the determination, by the Secretary of the Interior, that any irrigation project is practicable he may cause to be let contracts for the construction thereof in such portions or sections as it may be practicable to construct and complete as parts of the whole project, providing the necessary funds for such portions or section are available in the Reclamation Fund and thereupon he shall give public notice of the lands irrigable under such project and limit of area per entry which limit shall represent the acreage which, in the opinion of the Secretary, may be reasonably required for the support of a family upon the lands in question; also of the charges which shall be made per acre upon the said entries and upon lands in private ownership which may be irrigated by the waters of the said irrigation project and the number of annual installments not exceeding ten, in which such charges shall be paid and the time when such payments shall commence. The said charges shall be determined with a view of returning to the Reclamation Fund the estimated cost of construction of the project and shall be apportioned equitably; provided that in all construction work eight hours shall constitute a day's work and no Mongolian laborer shall be employed thereon.

Sec. 5. That the entrymen upon lands to be irrigated by such works shall, in addition to compliance with the homestead laws, reclaim at least one-half of the total irrigable area of his land for agricultural purposes and before receiving patent for the lands covered by his entry shall pay to the government the charges apportioned against such tracts, as provided in Sec. 4. No right to the use of water for land in private ownership shall be sold for a tract exceeding 160 acres to any one land owner and no such sale shall be made to any land owner unless he be an actual, bona fide resident on such land or occupant thereof residing in the neighborhood of said land

and no such right shall permanently attach until all payments therefor are made. The annual installments shall be paid to the receiver of the local land office of the district in which the land is situated and a failure to make any two payments when due shall render the entry subject to cancellation, with a forfeiture of all rights under this act, as well as of any moneys already paid thereon. All moneys received from the above sources shall be paid into the Reclamation Fund. Registers and Receivers shall be allowed the usual commissions on all moneys paid for lands entered under this act.

Sec. 6. That the Secretary of the Interior is hereby authorized and directed to use the reclamation fund for the operation and maintenance of all reservoirs and irrigation works constructed under the provisions of this act; provided that when the payments required by this act are made for the major portion of the lands irrigated from the waters of any of the works herein provided for, that the management and operation of such irrigation works shall pass to the owners of the lands irrigated thereby to be maintained at their expense under such form of organization and under such rules and regulations as may be acceptable to the Secretary of the Interior; provided that the title to and the management and operation of the reservoirs and the works necessary to their protection and operation shall remain in the government until otherwise provided by Congress.

Sec. 7. That where in carrying out the provisions of this act it becomes necessary to acquire any rights or property the Secretary of the Interior is hereby authorized to acquire the same for the United States by purchase or by condemnation under judicial process and to pay from the reclamation fund the sums which may be needed for that purpose and it shall be the duty of the Attorney General of the United States, upon every application of the Secretary of the Interior, under this Act, to cause proceedings to be commenced for condemnation within thirty days from the receipt of the application, at the Department of Justice.

Sec. 8. That nothing in this act shall be construed as affecting or intended to affect, or to in any way interfere with the laws of any state or territory relating to the control, appropriation, use or distribution of water used in irrigation or any vested rights acquired thereunder and the Secretary of the Interior, in carrying out the provisions of this act, shall proceed, in conformity with such laws and nothing herein shall in any way affect any right of any state or of the Federal Government or of any land owner, appropriator or user of water in, to or from any interstate stream, or the waters thereof; provided that—

Sec. 9. That it is hereby declared to be the duty of the Secretary of the Interior, in carrying out the provisions of this act, so far as the same may be practicable and subject to the existence of feasible irrigation projects, to expend the major portion of the funds arising from the sale of public lands within each state and territory hereinbefore named, for the benefit of arid and semi-arid lands within the limits of such state or territory; provided that the Secretary may temporarily use such portion of said funds for the benefit of arid or semi-arid lands in any particular state or territory hereinbefore named as he may deem advisable, but when so used the excess shall be restored to the funds as soon as practicable, to the end that ultimately and in any event within each ten-year period after the passage of this act, the expenditures for the benefit of the said states and territories shall be equalized according to the proportions and subject to the conditions as to practicability and feasibility aforesaid.

Sec. 10. That the Secretary of the Interior is hereby authorized to perform any and all acts and to make such rules and regulations as may be necessary and proper for the purpose of carrying the provisions of this act into full force and effect."

A careful study of the text of the Reclamation Act will unfold its prac-

tically unlimited possibilities in the way of irrigation and it is of interest to know that Senator H. C. Hansbrough of this state, was the author and that it was due to his persistent efforts that the act was finally passed by Congress. Since going into effect there has been paid into the Reclamation Fund, from the State of North Dakota, some \$5,550,000, or more than has come from any other of the sixteen states to which the act is applicable. As shown by the text, all fees paid in by Homestead, Desert Land, Timber and Stone land entrymen, both at the time of filing and final proof, have gone to build up North Dakota's share to this great sum which is over one-sixth of the grand total of the Reclamation Fund of \$30,000,000.

Accordingly, as provided by Sec. 9, the major portion (51%) of North

Dakota's credit in the fund must be spent within the limits of the state in the reclamation of semi-arid lands. As we are adding hundreds of thousands of dollars to the Reclamation Fund each successive year, it will not be

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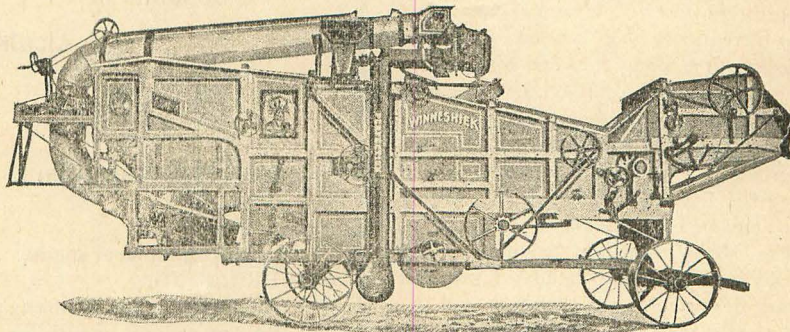
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many years before the state's credit amounts to \$10,000,000. Where in the state to spend this sum in the reclamation of semi-arid,—for we have no arid—lands, to the best advantage, was the problem confronting the Secretary of the Interior. In order so to determine, survey corps of engineers from the Reclamation and Geological Service, were placed in the field on reconnaissance work.

In a general review of the resources of the state, with reference to possible irrigation enterprises, an estimate of the available water supply was of first importance. From data already at hand it was known that the state contains three drainage areas, namely: The Red River basin, the Mouse River basin and the Missouri River basin. In the Red River basin there is at the present time more demand for drainage than for irrigation, altho a harmonious combination of both will undoubtedly be the final solution, especially if the work be undertaken by the Reclamation Service along the lines of Senator Hansbrough's plan.

On the Mouse River field investigation disclosed several natural obstacles to the construction of large irrigation systems. The natural flow of the river during the summer or irrigating months is too small and too variable to be dependable and storage of the spring floods must be resorted to if a reliable water supply is to be secured. Owing to the extreme width of the valleys, which prevents the construction of reasonably high dams, excepting at prohibitive cost, no favorable reservoir sites have as yet been located. Further investigation along this line may, however, bring more satisfactory results. Numerous projects on a small scale can be installed along the Mouse by resorting to pumping plants and by using the DeLacs Lakes probably larger areas can be brought under the ditch.

The Missouri River basin may be considered under two heads: First, the tributaries and second, the main stream. Practically the same conditions as exist along the Mouse prevail along the Missouri River tributaries and it remains for private enterprise to install small pumping and gravity plants wherever feasible. Many of these have already been constructed and in successful operation, for the past twenty years. The beautiful Yellowstone River is generally spoken of as a Montana stream, entire, but as a matter of fact it is a Missouri River tributary and North Dakota holds title to some 25,000 acres of as fine land as can be found in the state, no section excepted, all lying in the river valley, on the west bank. Before any government reclamation work was undertaken in this state, the Lower Yellowstone Project, embracing

some 73,000 acres, 50,000 of which lie in Montana, and the balance in North Dakota, had been surveyed and approved by the Secretary of the Interior as a Montana Project. Being a gravity system and thereby differing from the other North Dakota Projects, we shall consider it separately.

The Missouri River, itself, is a mighty stream, carrying, at low stage, not less than 10,000 cubic feet of water per second. This supply is sufficient to adequately irrigate more than 1,000,000 acres of land. At maximum, the river flow runs as high as 175,000 second feet. Since a constant, never-failing water supply, the prime requisite for irrigation, is furnished by the Missouri River, the Reclamation Service, in the search for feasible projects, concentrated investigation to that stream and the lands on either bank. Unfortunately the topography of the river valley is such that it was found impracticable to construct gravity projects, altho several promising flats or land benches were found along its course. While not impossible to construct a storage or diversion dam across the Missouri, the undertaking would be a

most stupendous one, on a scale with the Panama Canal.

The problem confronting the engineers, then, was to take the water from the Missouri River and carry it to those tracts which presented the most feasible projects, thru some agency other than


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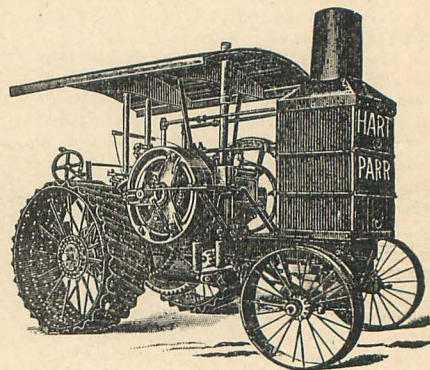
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by gravitation. Just what projects have been determined feasible and practicable and just now this problem has been met and solved, as well as the application of the Reclamation Act to them, will be told in next month's article.

THE CARE AND TREATMENT OF TREES IN SUMMER AND FALL

C. B. Waldron.

It is a serious question in the minds of tree growers, at this time of the year, just what can and should be done in the treatment of trees for the balance of the season. We have had numerous inquiries as to how long the cultivation should be continued, and what pruning, if any, should be done at this time of the year or later. As this is one of the most critical periods in the life of young trees it is important to know what to do at this time.

As the welfare of the tree is so closely associated with the soil in which it grows, the treatment will depend, of course, very largely upon the condition of the soil. If the soil is comparatively dry, as is usually the case in most parts of North Dakota, at this time of the year, it is a good plan to continue cultivation up until the close of the season. We have noticed numerous instances trees make a good growth until some time in August. They then begin to lose their foliage and go into the winter in a very dry condition with small chances of growing the following season. This is, in most cases, due to the fact that the soil has been allowed to become too dry thru lack of cultivation or mulching. In midsummer the trees are in full leaf and the rate of evaporation is greater at that time than at any other season of the year. At that time, also, the atmosphere is drier and that tends to increase the evaporation. This moisture must be provided for by continuous cultivation, or, where that is not practical, by mulching with straw or coarse stable manure.

In most cases the pressure of work upon the farm from the middle of August to the end of the season is such that young trees will not get the proper amount of cultivation. In all such cases they should be mulched. It is a question under many conditions, if mulching is not better than cultivation. The experiments at Edgeley show that a good mulch applied in mid-summer made a larger growth upon the trees the following season than did continuous cultivation; and in all cases where the soil is rather hard and dry, we will recommend mulching in place of cultivation. The mulch should be left on during the winter and the following season. As it decays it can be cultivated into the soil. It still continues

to perform its office of mulching and at the same time allows cultivation for the destruction of weeds and grass. It may also be stated that trees that are mulched are much less liable to winter-kill than those around which the ground is left bare.

In seasons when the soil contains a large amount of moisture, particularly in August and September, it is not wise to force the growth by continuing the cultivation too long. If the trees are found to be growing too rapidly the first of September, one should stop cultivation, thus allowing the soil to dry out and compelling the trees to mature and ripen before winter. If mulch is applied in such cases it should not be done until the growing season is over, some time in October. In extreme cases of this kind where the soil is very rich and moist, and the season is warm, it is sometimes a good practice to sow a good crop of oats along the trees to assist in drying out the ground and ripening up the wood of the trees. It may be said, however, that this practice is not necessary in an ordinary North Dakota season. It is followed in regions that have more moist growing weather in the fall, particularly in those states further south and east.

In the matter of pruning, it is not well to prune heavily after the first of August, as the pruning will stimulate a new growth which is not apt to mature well before winter sets in. If fall pruning is done at all it should be done after the fall season has commenced. There is no objection to pruning trees after that time of the year. The small wounds that are made will quickly heal and cover in the next year's growth. It is not considered good practice, however, to remove large limbs in the fall as the freshly cut wood dries out and checks in the winter. This should be done just after the leaves open up in the spring.

In regard to the matter of tree planting we may say that it is an excellent plan to prepare the soil at this time of the year for next spring's planting. There are often days during harvest when it is too wet to cut grain,

but the soil is in excellent condition for plowing. It is then very good practice to plow and work down the soil preparatory for spring planting. We have also found it to our advantage in heavy soil to dig the holes for the trees in the fall. Such soil, in the fall, is in better shape for digging than in the spring when it is often too wet and sticky to be handled. Also, the action of frost upon this heavy, soil, when it is put in a pile, results in pulverizing the soil so that it can be nicely worked around the roots the following spring. It is difficult to make trees grow that are planted in wet, sticky soil, and this difficulty can be overcome by fall preparation after the manner described.

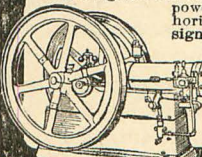
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THE NORTH DAKOTA BARLEY CROP.

O. O. Churchill, N. D. A. C.

The acreage planted to barley in North Dakota has been greatly increased this year, but what the quantity or quality of the crop will be depends largely on future conditions. It is certain, however, that North Dakota grown barley has never been popular with the big malting houses. There seems to be two causes of complaint both of which could be remedied—carelessness in harvesting and the kernel has too thick a husk. For these reasons brew masters and malsters discriminate strongly against our barley.

I recently spent some time among the big malting houses and with the Industrial Chemical Institute (Hantke Brewing School) of Milwaukee studying the question from the consumers view point as their needs and demands must be complied with in order to secure the most satisfactory results. Everywhere I was treated with the utmost courtesy and given perfect liberty to study their problems. Our interests are their interests for when we produce larger and better crops, they in turn can turn out a cheaper and more perfect product. The malsters and brewers have no secrets.

Milwaukee is the great malting center of the United States. Over fifteen million bushels of barley are malted annually in that city. The Pabst malting house, for instance, has twenty-four malting tanks each with a capacity of four thousand bushels. This gives them a capacity of about six million bushels per year, as it takes about a week to properly germinate the barley. The slower the germination the better the product. The Pabst company furnishes malt for some of the other brewing companies as well as supplying that for their own plant. The American malting company is by far the biggest institution of its kind in America. It supplies malt by contract for many brewing houses. Some "Dakota" barley is malted here and the general manager told me that it was quite satisfactory, but at the Pabst plant I was informed that North Dakota barley was of too poor quality to give satisfactory results. Some of the malting companies run their own line of elevators and buy their barley direct from the farmer. The buyers without exception said that the best barley came from Wisconsin; Minnesota was second and that Iowa and South Dakota followed. Their explanation was that by coming in closer contact with the demands of the malt-

ing houses the farmers had learned how to handle their crops.

It was at the brewing school that I was "put next" to the finer points of what the malsters consider a good malting barley. Mr. Rhode, a university graduate, scientifically trained with all corners knocked off by experience showed me the details of their plant and allowed me to impose upon his good nature with frequent questions. They have a model plant, fully equipped and are prepared to thoroly train men for any branch of the work. Dr. Fisher accompanied me through the malting and brewing plants, conferring a great favor as it made admission easily possible and loosened up the information of the men who know.

The great advance in the price paid for barley is not due to manipulation of the markets, but to the actual shortage. All malting houses are having trouble to fill their contracts to furnish malt to the breweries. A few of the smaller houses have been compelled to close up their plants as it was impossible for them to secure barley. Large quantities of feed barley are being malted consequently its price has risen rapidly; yet there is a difference of 5 to 10 cents paid for feed and malting grades.

Now the question is, can the producer afford to lose, through careless methods of harvesting his crop, five to ten cents per bushel on his barley? The question needs no answer, but the methods of improvement are worthy of consideration.

Selection of Variety.

A variety free from mixture and which matures uniformly should be planted. Uniformity, to a large degree, determines the value of the malting barley. The number of kernels which germinate and their uniformity of germination are always tested by the malter. Thoro and complete germination is essential. A variety which does not germinate uniformly will not ripen uniformly, hence the necessity of the careful selection of the seed.

Preparation of Soil and Seeding.

As far as this consideration goes, the time or manner of preparing the soil make little difference so long as it is in good condition at the time of seeding. It should be mellow, free from lumps and wet spots. It is best not to apply any barnyard manure or nitrogen fertilizer for this crop. These fertilizers weaken the straw and for other reasons stated later are objectionable. The seeding should be done at a uniform depth, at an even rate and in fields of such size that they can be properly cared for at the time of harvest. In fact, anything which tends to-



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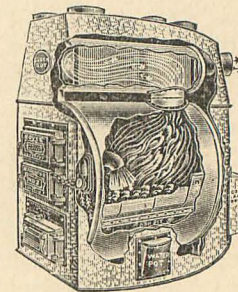
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ward producing a uniform crop should not be overlooked.

Harvesting.

The greatest mistakes are usually made in harvesting and it is at this time that the damage usually occurs. Contrary to the general opinion that barley should be cut when quite green, the malsters say that it should be cut during the "yellow ripeness" or just when the kernels are getting hard but are still soft enough so that they can be dented with the thumb nail. Neither should it be allowed to become over ripe before cutting. The germination depends somewhat upon the stage of maturity at the time of cutting. Different chemical ingredients are stored up in the kernel at different stages of maturity which gives additional technical reasons. The bundles should be cured as quickly as possible then stacked or threshed to lessen the danger from dews and rains. The grain should not be cracked in threshing. The more important considerations in marketing are: Color, thickness of hull, sprouted, bin-burned and mouldy kernels, vigor and uniformity of germination, weight per bushel and per cent starch. With the exception of the starch content the relative value of these different points are so well understood that they need no special consideration. A high per cent of starch with a low per cent of protein is desirable. Nitrogen fertilizers tend to increase the protein and hence should not be used.

North Dakota barley could just as well be marketed in good condition if a little precaution is used. It is the color, the thick hulled berries and the amount of damaged grain that gives it its poor reputation. Our barley could almost as easily be put on the market in bright, mature condition, free from sprouted and musty kernels. Of course the bundles could not be left in jumbled bunches on the ground for a month or two before threshing but that is not necessary. The thickness of the hull and high per cent of protein are both due to our climate and can only be remedied by careful breeding of the best varieties.

VALUE OF LIQUID MANURE

By Ashby Colvin

The Vermont Agricultural Experiment Station in bulletin No. 108 states that the plant food value of manure including the solid and liquid, on a 20-cow, 4-horse, 50-sheep and 10-pig farm for a year would approximate \$600 and that approximately one-half of this would

be liquid manure; or in other words, the valuation of the liquid manure would be \$300.

As to the relative values of the solid and liquid excreta, this varies with the different animals, but the average value of liquid manure is \$7.00 to \$8.00 per ton. This is the value in plant food found by chemical analysis, but there are other values such as the action of liquid manure on soil, which makes the value infinitely more than \$8 per ton.

The question now is how to preserve it. Probably in 99 barns out of every 100 that have wood floors, there have been at some time or other holes bored in the floors under the animals to let the liquid manure drain off. There is no question but what this is the easiest way to get rid of it.

If you were to bore a hole in the bottom of your grain bin and let your grain waste at the rate of 2 or 3 bushels per day, your family would immediately ask that a conservator be appointed for you. The loss of the liquid manure is of almost as much importance to you as the loss of the grain. The loss of the grain, however, would be direct, while the loss of the liquid manure would be indirect.

Now do a little calculating. If you have holes bored in the barn floor to let the liquid manure out, figure it up and see how many tons you have lost in the last few years, placing the value at \$5 per ton; and we believe you will find the loss astonishing.

It is not possible to lay down a hard and fast rule as to how the liquid manure can be saved. Many farmers have arranged drains under the stalls of their horses and cattle, and drain the liquid out into cisterns or other receptacles.

This is perhaps more of an expense than the ordinary farmer would be willing to assume, altho he can easily afford this expense. If you deem this a greater expense than you wish to undertake, a more simple method is the use of absorbents.

The character and amount of the litter used in bedding is all important factor. Not only does good bedding liberally used promote the comfort of the animals, but it adds to the quantity of the manure and betters its quality because of its power to absorb and retain the liquids. The materials that may be used as absorbents are many, the more common ones being straw, refuse hay, corn stover, saw-dust, shavings and leaves. These are all more or less serviceable.

Dry saw-dust probably possesses greater absorbing qualities than the others and on the whole is preferred where it can be had, it is held by some to have a harmful effect upon the soil but there seems little reason to believe this to be true. The Vermont Experi-

ment Station in bulletin No. 108 states that they have used saw-dust for fourteen years and have yet to note the slightest damage tho hundreds of tons have been applied to both clay and sand loams.

There is scarcely a farmer who has not an unlimited amount of straw left over in the spring. If this straw were used more freely and the animals were bedded with a bedding of one or two feet of clean straw every day the most of the liquid would be saved, but the straw alone is hardly sufficient. If the straw is used alone it would be well to use a cutting box, cutting the straw into half inch or inch lengths and scattering half a bushel of it under each animal twice a day, and then bedding on top of this. In this way practically all the liquid would be saved.

If you have use for the cutting box for no other purpose than this the expense of such a machine should not be to exceed \$15 or \$20, and it can be worked by hand power or with a small engine of not more than 2 horse power, and at a small expense you can more than double the value of your manure yearly.

I beseech you to take some steps to save the liquid manure. It is far too important a subject for you to overlook. As stated above, on a farm carrying 20 cows, 4 horses, 50 sheep and 10 pigs the loss of the liquid manure will amount approximately to \$300. You can afford to go to an expense of \$15 or \$20 to save this.

It will of course mean a little work during the year, but suppose you hire a man and let him spend one month cutting up straw or corn stover for this purpose. In half of this time he would certainly cut up enough to supply you during the year, and this expense could not exceed \$30. Besides this, you will not only save \$300 as outlined above but you will make more manure, and you will convert the straw stack into the best possible shape for manure.

There is no other question of more importance than the saving of the liquid manure, utilizing the straw pile and getting it in shape so it can be turned into manure, unless it be to see that your manure is spread every day, as fast as it is made, and to see that your manure is spread evenly.

Remember that it is always best to spread less per acre and cover more acres than to spread a heavy application over a few acres.

It has been demonstrated that a ton of barnyard manure is worth \$3. You can figure to double your output every day, certainly thru the winter months, and there is no question but that the average farmer can make more money by giving this subject a little thought just at the present time than he can in any other way.

North Dakota Farmer

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A RICH TREAT FOR OUR READERS

President Worst returned from his European trip the last of August and is busy with preparations for the opening of the fall term of school at the Agricultural College. While in Europe the President visited Holland, Belgium, France, Germany, Ireland and England for the purpose of investigating the agricultural methods employed in the most densely populated countries of the civilized world; where the most intensive systems of cultivation are practiced and where every acre is compelled to produce its best every year.

To obtain this information President Worst visited with and interviewed many leading farmers in these countries and learned all he could about their methods of cultivation, crop rotation and how they fertilize the land to insure its continued productiveness. Many of these lands have been farmed for a thousand years or longer and are more productive now than ever before.

President Worst has agreed to furnish the North Dakota Farmer with a letter each month, during the coming year, setting forth his observations and also will make some recommendations that North Dakota farmers should profit by.

This will be the most important series of articles ever published in this state and the North Dakota Farmer congratulates its readers who have a chance to follow the articles thru the coming year. No man is so well able in North Dakota to present so readable and helpful a series of articles on Agriculture as President Worst.

RECENT BULLETINS

There has recently been issued from the North Dakota Government Agricultural Experiment Station, three bulletins of special interest to the farmers of North Dakota. Either of these Bulletins can be had by writing to the Experiment Station, Agricultural College, North Dakota, and if any of our readers are not already supplied with the Bulletins they should have their names upon the mailing list.

Fattening Steers on Barley and Rejected Wheat

Under the above heading Bulletin No. 73 prepared by Professors Shepperd and Richards, deals with the feeding of grain to cattle and an attempt to determine the comparative feeding value of barley and rejected wheat.

They call attention to the necessity for more attention being given to the growing of live stock upon the farm, the proper fattening of the same for the market. They say:

"It is also an open question with the grain growers whether they could not get larger returns for some of their grain, and especially for that which is off grade, by feeding grass cattle in transit which can be bought near home, and which are grown in such large numbers in the western portion of this state. Nearly all of the cattle raised in the state are shipped to the markets and there sold to feeders in the corn belt to be grain fed and finished into prime beef. There is no special reason why the feeders of the corn belt possess any great advantage over our conditions."

They call attention to the necessity for experimental work in feeding of steers, and of the importance of having more definite information available for the use of the farmer. During the period during which steers were fed barley and bran, they made an average daily gain of 2.14 pounds per head for 132 days, which was a very satisfactory gain, and much larger than can be expected in commercial feeding. For every pound of gain there was consumed 6.56 pounds of grain, together with roughage. In conclusion they say:

Conclusions

1. The steers in this trial made very satisfactory gains on a grain ration consisting of about 2-3 ground barley and 1-3 bran with ordinary hay for roughage.

2. That the amount of grain consumed per pound of gain was relatively low.

3. That the average daily gain made on a ration of 2-3 ground barley and 1-3 bran was as high as gains made in trial where corn has been fed as the exclusive grain ration.

4. That the steer with an inferior beef form and lacking the blood of the

beef breeds did not make as good gains as the others which were superior in form.

5. That feeding the class of steers used in this trial on the ration fed would be a profitable undertaking.

A further experiment was made in feeding rejected wheat and bran versus corn meal and bran. The authors say:

The results derived from the two feeding periods seem to indicate that rejected wheat and bran would prove as good a grain ration to feed during the first part of the feeding period as corn and bran, and that good gains can be made by feeding corn towards the end of the feeding period. It is difficult to assign a cause for this change of feeds producing such large gains. The extra growth made by the steers in Lot 1 may account for the gains made later on. The condition of their systems must have been better for assimilating the new ration.

Some of the conclusions drawn from these experiments are as follows:

Conclusions

From the second trial reported in this bulletin we draw the following conclusions:

1. That steers fed rejected wheat and bran did not make satisfactory gains.

2. That the lot fed rejected wheat and bran made exceptionally good gains when fed corn and bran for seven weeks after the regular trial.

3. That feeding steers rejected wheat and bran for sixteen weeks at the beginning of the feeding period of twenty-three weeks produces as good gains as feeding a grain ration of corn and bran for the whole period.

4. That the lot fed rejected wheat produced the cheapest gains.

HINTS TO HOMESTEADERS

This Bulletin was issued by the Experiment Station and prepared by L. R. Waldron superintendent of the Dickenson Sub-Experiment Station. It contains hints and suggestions on various topics such as, Diversified Farming, Rotation of Crops, Breaking Prairie Sod, Seeding, Harrowing Grain, Dry Land Farming, Weather Data, and treats of forage plants suitable to the dryer regions of the state. Under the topic, Breaking of Prairie Sod, referring to the dryer land farming sections of the state, the author says:

It is generally held that the ideal method of subduing prairie sod, preparatory to a crop, is as follows:—The sod is broken as shallow as possible in June or early in July. For this purpose a walking plow is considered preferable. In August, after the sod is rotted, the ground is plowed again, back-set as it is called. For this purpose a stubble plow is used, turning back the old fur-

row and bringing up two or three inches of the new dirt. This ground is prepared, as circumstances indicate, during the fall and the following spring, for the crop. It is often advisable to go over the new breaking with an implement to flatten the sods against the ground to aid the rotting process. On gravelly land with little turf or on scrub land, it is better to plow once, breaking as deeply as possible.

Many of the new settlers will want to grow a crop upon their land the first season. In such a case, one plowing must suffice. The plowing must be done earlier in the season and should be at least three inches deep. Preparation for the seed may be made as circumstances demand. Fall breaking is generally advised against. In Manitoba spring breaking and backsetting yielded 28 bushels of wheat against 14 bushels on fall breaking. In any case it is better to break no more than can be properly taken care of.

Flax is the crop most commonly grown on new breaking. Flax matures in less time than most other crops and so may be sown later. Flax roots, while shallow, seem to exert a strong "pull" on the soil moisture. Thus in an ordinary season flax would be a more successful crop than the cereals, such as wheat, oats, barley or emmer. This ability that the flax has for drawing the moisture prevents the sod from rotting and so leaves the soil in a poor physical condition for the succeeding crop. In a wet year flax may aid the rotting of the sod by taking so much of the moisture that grass is prevented from growing. Wheat and oats are less recommended to be grown on new breaking than flax. Like flax, they are apt to leave the soil in poor physical condition.

CEREAL CROP EXPERIMENTS

One of the important Bulletins recently issued by the Experiment Station, deals with Cereal Crop Experiments and is written by Professors Shepperd and Churchill. This Bulletin contains much valuable data that cannot well be condensed. Elsewhere we have made some abstracts, but we would urge our readers to send for a copy of the same. Under the "Harrowing of Wheat" the authors say:

Harrowing Wheat

A test of harrowing wheat after it has been seeded has been made each season for several years. The following outline shows the plan of the trial.

1. Harrow just after wheat comes up.
2. Harrow when wheat is three inches high.
3. Check.

4. Harrow when wheat is six inches high.

5. Harrow once every seven days until wheat is six inches high.

No positive results have yet been secured in this trial. In 1904 the plats which were harrowed matured later and rusted much worse than those not harrowed. With rains as frequent during the period when the harrowing would have to be done as they were the past two seasons, little benefit could be expected from harrowing. In dry seasons or in sections where the harrowing could be done at the proper time there is no doubt but what good results would be secured. However, the success attained by harrowing wheat will depend largely upon the ability of the one doing the work.

Some of the more important subjects treated of are, Preparation of the Soil and Seeding, Varieties of Wheat, Yellow Spot in Durum Wheat, Varieties of Durum Wheat, Different Rates of Seeding, Preparation of Corn Stubble Ground for Wheat, Varieties of Winter Rye, Varieties of Emmer, Variety test of Oats, from which the authors conclude:

1. Seasons favorable for a variety of oats decreases the per cent of hull.

2. Some varieties of oats give uniformly a higher per cent of meat.

3. No correlation seems to exist between the weight per bushel and the per cent of meat to hulls.

4. As the rudimentary kernels decrease in size they increase the per cent of hull up to a certain degree.

5. The oat that weighs most per bushel is not necessarily the most valuable.

6. The thickness of the hull seems to be somewhat hereditary.

There are also variety tests of barley, of flax, and buckwheat, and much tabular matter is given in connection with these tests that may be well studied at leisure.

MIDLINGS AND SHORTS

Middlings and shorts are terms used interchangeably to some extent. It has become common to find shorts consisting simply of ground-over bran, almost free from floury particles, with the sweepings and dirt of the mill added. Such material is very unsatisfactory for stock feeding and should be avoided. Middlings are especially useful for feeding horses, since these animals cannot utilize much crude fiber. They should be mixed with corn meal, oats or other feeding stuffs as pure middlings are a heavy feed and liable to produce colic.—Feeds and Feeding.

THE BETTER VARIETIES OF DURUM WHEAT

By Prof. Shepperd & Churchill

It is very important to select the best varieties if durum wheat is to be grown. The six following varieties have given the best results in our Station trials and they are the ones recommended to North Dakota producers.

North Dakota Number	Average Yield
917—Gharnovka, U. S. No. 5,646	31.1
914—Yellow Gharnovka, U. S. No. 5,642	31.0
778—Aronautka	30.8
916—Black Don, U. S. No. 5,645	30.5
929—Kubanka, U. S. No. 5,639	30.3
930—Velvet Don, U. S. No. 5,644	29.4

Five of these six varieties came from Russia thru the U. S. Department of Agriculture. The more southern or Mediterranean varieties have never done so well in our trials. It should be remembered that two strains of durum wheat may both be known as Kubanka, for example, and yet a great difference exist.

Some of the Kubanka varieties are, according to the trials of J. H. Sheppard of the South Dakota Station, well adapted to the manufacture of flour, while others are poor flour producers. Prof. J. H. Sheppard has made an extended study of the milling and chemical characteristics of durum wheat and its adaptation for bread making. The notes given in regard to these points are extracts from South Dakota bulletins numbers 82 and 92.

Kubanka, U. S. No. 5,639 and its offspring is the only strain known by this name that can be recommended. No Kubanka durum except U. S. 5,639 and its offspring have been distributed by this Station. In 1901 the United States Department of Agriculture sent a large quantity of this strain to the South Dakota Experiment Station to be grown under contract and the resulting crop was returned to the Department, when it was given another number, viz. U. S. No. 8,522. In 1905 this Station secured fifteen (15) bushels of No. 8,522 and large quantities have been distributed to many grain growers under this latter number. According to the authority quoted above, Kubanka Y. S. No. 5,639, mills a higher percentage of high grade flour, has a good color, is as well flavored and mills as easily as the best strains of life and blue stem tested. It also produces a delicately flavored macaroni. In 1904 Kubanka No. 5,639 rusted much worse than the other durums listed above. It also has a greater tendency to become soft and starchy in poor seasons.

Velvet Don is classed as a great drouth resisting strain. It has a low

flour yield and the flour produced is of a poor color, but it is well adapted to the manufacture of macaroni.

manufacture of macaroni. The grain usually has a good color and sells as well as any of the other varieties for export trade.

Black Don, Yellow Gharnovka and Gharnovka re about the same as Velvet Don in their flour productive capacity, all being rather poor, altho they are good varieties for macaroni production and are in demand for export trade.

No. 778, Aronautka is a variety received from T. N. Oium, of Lisbon, North Dakota, in April 1901. It has been grown longer in this state than any of the United States importations and is by far the most widely distributed variety. Its yielding and drouth resisting qualities are excellent, and it is as free from disease as any variety which has been tested. It usually has a fine amber colored kernel of high grade.

From these notes it will be seen that there is a great difference in value between the different varieties of durum wheats when they re used for either flour or macaroni production. It is impossible to tell one durum wheat from another by the grain, hence the color is the one important point in marketing. The quantity and quality of the gluten is not at present recognized by the buyer. The producers should do everything possible to eliminate the poor varieties even when they give good yields. If only the best varieties of durum wheat are grown and in the sections best suited to their production the problem of marketing would be easily settled.—Bulletin No. 75 N. D. Station.

A WAGON LOADER

Will some practical farmer fully describe and if possible, illustrate a device for loading and unloading hayracks and wagon boxes onto and from the wagon gear?

J. F. L.

Pisek, N. D.

Answer

We hope some of our readers who have had practical experience in these matters will give the desired information. Many such devises have been used and many of our readers are undoubtedly using the same and can furnish some interesting information.

One form that we have seen used, is a frame built on which the wagon box or rack slides a little higher than the axle. On these are rollers, the wagon is backed against the frame, lifted on to a roller and easily pushed back into place or forward on to the wagon gear, as desired.

A strong solution of salt and water applied often is a quick and sure cure for sprains and bruises.

The Standard Oil Company it is said, from 1882 to 1903 paid in dividends \$551,922,904 averaging 24.15 per cent each year. The total earnings were however considerably more than this.

The price of flour always goes up with the price of wheat but seldom thinks to take a fall in price when wheat goes down. It must be like some politicians on the tariff question. A believer in standing pat.

Don't forget that your farm animals all need salt when they are housed for the winter. They should have a regular supply. This can best be ensured by having large lump of rock salt where the animals can get at it regularly and lick from it as desired.

It is said sagebrush fibre makes excellent binding twine. It is said the fiber is tough and strong, and a patent has been granted for its manufacture. Would it not be strange if the despised sagebrush should prove of agricultural value for our arid regions?

The Jamestown Exposition is well worth seeing. It has many unique features and from an industrial and educational point of view it is a success. October or November are good months in which to visit the South and see the country as well as see the exposition.

Give this paper 20,000 subscribers and great improvement could be made and why should there not be that number of subscribers in North Dakota. The paper is the only agricultural paper published in the state and has at all times stood for the protection of the farmer and his interests.

Is your flour bleached. Do you want to eat chemicals in your bread, cakes, pies and all other products made from or in part from flour. Is it safe or right? Shall we take any chances even tho the injury may not be noticeable for years. Finally when the health of a generation is impaired, then the people will rebel.

Are you advertising your farm and pushing to the front as the successful business man does. Why should you not and why should you not have well bred grains or animals to sell at a good price every fall. Have you the best bred calf or wheat or corn in your town? Why does your neighbor and not you have it?

In a few years North Dakota will become a great dairy state and this to the everlasting benefit of the state. We have the most nutritious grasses and an abundance of excellent mill feed.

Let us encourage the dairy farmer and the building of creameries when they will succeed. The farmer must, however, care well for his milk and cream.

\$29,240,000 is the fine assessed against the Standard Oil Company sometimes called the Oil Trust. What does it mean? Is there to be a revolution in abuses so prevalent in the past and are we to be benefited and the laborer given a greater proportion of his just earnings? Will we have better oil? Will it be cheaper or must the public pay the fine if collected?

Farming can never be a success where all forms of stock are neglected. Successful agriculture means stock on every farm, cattle and sheep; this means diversified farming, plenty of grass and above all clover. Land under such conditions of cultivation will produce annually when in wheat not less than 30 bushels of wheat or 70 of oats. Does your farm do this?

It is said one of the great harvester concerns will put upon the market another year an automobile designed for farm use and at a price which will make it possible to use it for farm purposes. They have an entirely new design and have succeeded in doing away with the expensive and troublesome inflated rubber tire. The farm automobile may become as common as the binder.

The crop while of fair average is not by any means what it should have been and we again emphasize the need for diversified agriculture in North Dakota. When one man's field yielded 30 bushels of wheat and just across the way a neighboring field has 9 bushels of shrunken stuff well sprinkled with weeds something should be done. Such object lessons are not rare. Small farms well tilled pay.

How about the Farmers' Institutes. Did you attend last year and was it a success? If so what made it successful? Did you apply any of the teaching gained from attendance at the Institute. If not you were not benefited. How about the Institute for 1908, are you to have one in your community. If not whose fault is it? The Farmers' Institute ought to be the best attended gathering for the year.

The time has come when the boys and girls need a different type of education from what was common in our boyhood days. Are they getting all that is due them? We need trade schools, technical schools, agricultural high schools and plenty of practical

work along with the cultural studies. One must earn a living first before he can enjoy leisure. The right kind of education makes it easier to get leisure.

North Dakota is the greatest wheat producing state in the Union. Minnesota gets all the credit for the flour. Why not North Dakota have her share of credit. The flour from this state should be better advertised and the mills of the state would be benefited thereby and this would help the farmers who grew the wheat. An organized effort among the millers would do much to bring the North Dakota product to the front.

At last macaroni wheat has been recognized in the markets by fixing three grades for it. In that part it has been just durum wheat or macaroni. It has come to stay and now will the farmer be allowed its true worth or will they continue to discriminate unfairly against it? It may not grind quite so easily in the mills now in use but this will soon be a thing forgotten. Who can tell what now becomes of the durum wheat?

Why should North Dakota people buy canned goods like peas, beans, corn, etc., put up in Maine, New York or Wisconsin. Why should we not grow and put up our own products? Why not a cannary for North Dakota. Why does not some farmer interested in these things have a home canning outfit and try his success and have fresh product for the home and then sell to the less progressive people. North Dakota

can grow as good sweet corn as Maine, as good peas as Wisconsin. Why not try it?

Every dairy farmer should have his own cream separator and not take his milk to the creamery for separation. In this way only can you be sure of avoiding disease common in other herds. Has your neighbor's herd tuberculosis? If so, when you bring back skim milk from the creamery you may have the milk from his herd to infect your own herd.

Go slow in feeding new grain. Nothing will upset the horse quicker than new oats. New oats should not be fed for at least two months after harvesting. They induce colic and soften the horse for good work.

Green corn if fed too freely to the hogs may give you trouble. Go slow in feeding new grains.

Farm products should sell much higher than they now do from 20 to 100 per cent. This does not mean that the retail price should go higher but the middle man should be cut out and the profit go to the farmer who like the clerk and average salaried men are not able to make both ends meet.

To succeed, every man must like his occupation. A man who always thinks some other man has an easier time than he has is usually a failure.

Has the henhouse and cowbarn been whitewashed and put in shape for fall so as to destroy all lice and mites?

the dawn, have not yet begun to quiver in the east. On the contrary, greed and chicanery did what they could to defeat congressional legislation concerning food and drink, or to delay it, or to mutilate and weaken the act.

The majority of the canned meats on the market supposed to contain one pound are from two to four ounces short in weight. Package goods like breakfast foods labeled as containing one pound seldom contain to exceed thirteen ounces. Packages sold for five pounds have been found to be from fifteen to twenty ounces short, or, at times, more than one pound in five.

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FARMERS' SUPPLY HOUSE,
Fargo, - - - North Dakota

Pure Food Department.

All Matters Pertaining to Foods will be Discussed in this Department

THE FIGHT FOR PURE FOOD AND DRINK

If all men and women were honest and unselfish, those servants of the Nation and the State who are charged with the enforcement of the acts of Congress and the several legislatures relating to the food of the people would, says the Food Commissioner of Pennsylvania, have a very pleasant time. For under such conditions no food, no beverage, would be sent out to the venders unless it was exactly what it purported to be. It is only because some manufacturers and some dealers are selfish and avaricious and unscrupulous that some of the State legislatures have enacted pure food laws and provided for their enforcement. It was the same condition of affairs and the rising tide of popular impatience that forced Congress

to act after seventeen years of delay and to pass the Food and Drug law which the Department of Agriculture is instructed to enforce.

The Bulletin does not disguise its conviction that the national law is a very defective measure. Still, it is a long step in the right direction, and it seems that the consuming public have a right to congratulate themselves upon having secured so much to start with. If the interest of the people is maintained, as it well may be, considering the importance of the subject, additional and more stringent legislation may be confidently looked for. It is too true, unfortunately, that much of human nature is not a pleasant thing to consider. The millenium may be just around the corner—let us hope it is—but the rosy pencils of light presaging

Pure Food Advertisers

The products advertised below are in compliance with the pure food law of North Dakota and of the highest grade.
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"EAT"

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RETAILERS PROTECTED

The National Food Law did not take effect until January 1st, 1907; and all goods on hand or receive by you prior to that time, are not affected in any manner by the National Food Law, and will not be, unless shipped from one state into another after the law goes into effect January 1st, 1907.

For your protection, it is necessary that you handle only pure goods, properly labeled within the meaning of this law and we, therefore, call your attention to the fact that food products sold to you by us are not adulterated or misbranded and are all guaranteed to conform to the requirements of all food laws, both State and National. This guarantee protects you from prosecutions under the National Food Law on any food products purchased from us hereafter.

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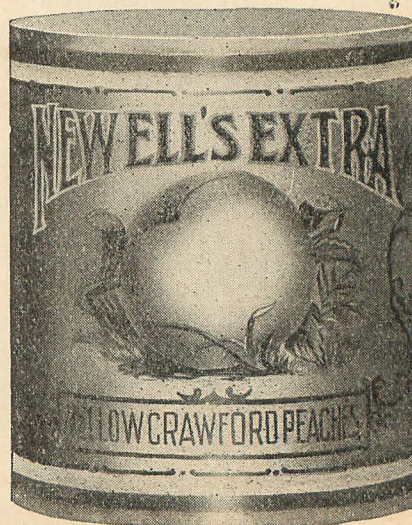
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Represents the highest quality of food
products that can possibly be obtained.
Purity and quantity always stand fore-
most.

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WHOLESALE GROCERS,

MINNEAPOLIS, - - - MINN.



And so we might go thru the list of various food products, crackers, cheese, even flour and other products and find that they are from five to twenty per cent short.

Is this discrimination fair or just even to the producer who is willing to give full measure or weight, but cannot compete with the unscrupulous man who is willing to profit by cutting short the contents of his can or package?

BLEACHED FLOUR WARNING

The food commissioner has recently sent out a circular declaring bleached flour containing nitrites etc., as being in violation of the food law and its sale is to be prohibited after October 1st. The circular reads as follows:

Having investigated carefully the subject of flour bleaching as now generally practiced and having become convinced that the said process of bleaching results in the production of a product prejudicial to the health and best interests of the consuming public, therefore:

On and After October 1, 1907, the Sale of Bleached Flour Containing any Residue of Nitrogen Absorption, Addition, or Substitution Products and Intended for Consumption within the State of North Dakota, is Declared to be in Violation of the Food Law of the State.

All other flour bleached by any chemical process or agent, and containing no added residual products, shall on and after the said date be labeled as "Bleached", and in type uniform in size with the name of the brand or producer of the flour.

All flours or other food products shall be truthfully labeled with regard to net weight, the true grade and the name of the real manufacturer or jobber.

Nothing in this order shall be construed as in any way prohibiting or restricting the use of bleaching agents in flour and milling products to be shipped out of the state.

The Name

"Nokomis"

On the label of any food product is an absolute

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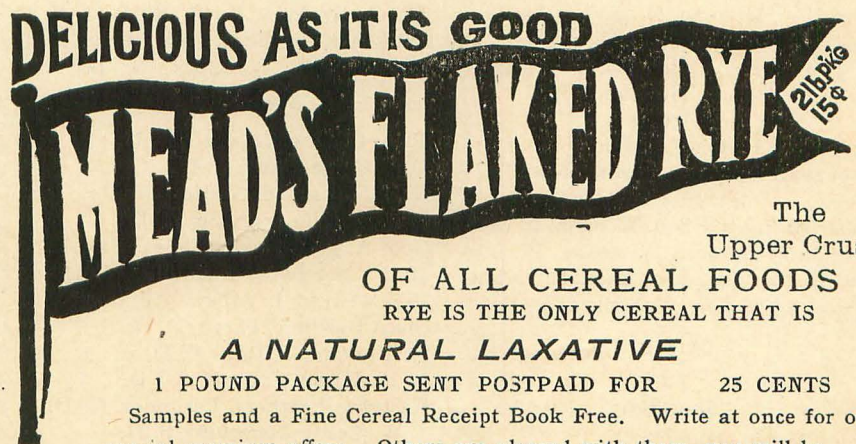
And it is also a guarantee that the product bearing the label has reached the highest degree of excellence in flavor and wholesomeness that it has been possible so far for any food product to reach.

If your dealer does not handle Nokomis Canned Goods and Nokomis Coffee, send us his name and address and we will undertake to see that you are supplied.

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CATTLE

Shorthorn

James Austin, Hannah, N. D.
W. W. Brown, Amenias, N. D.
Winn Brothers, Redwood Falls, Minn.
Sanders Brothers, Farmington, Minn.
E. C. Butler, Cooperstown, N. D.
J. W. Crawford, Wahpeton, N. D.
F. W. Harding, Waukesha, Wis.
F. J. Dickerson, Medford, N. D.
James O'Hara, Lanesboro, Minn.
D. J. McLean, Cokato, Minn.
John Donnelly, Grafton, N. D.
N. P. Clarke, St. Cloud, Minn.
S. Fletcher, Matteson, N. D.
A. C. Gallup, Fairmount, N. D.
Frank Hammond, Bismarck, N. D.
S. G. Eliason, Montevideo, Minn.
Thomas Hecker, Carrington, N. D.
H. A. Nelson, Ray, N. D.
M. D. Kiser, Rogers, N. D.
Wm. Laplant, Jessie, N. D.
Stern Brothers, Fargo, N. D.
C. H. Ferrier, Dover, Minn.
Andrew Laughlin, Lisbon, N. D.
J. S. Anderson, Atwater, Minn.
D. W. McCanna, Cando, N. D.
A. K. DeJong, Marion Junction, S. D.
Barnes & Shaffer, Wahpeton, N. D.

T. H. Canfield, Lake Park, Minn.
J. S. Peterson, Crete, N. D.
J. B. Powers, Power, N. D.
Luke Stannard, Taylor's Falls, Minn.
H. A. Strutz, Holmes, N. D.
W. J. Turnbull, Harwood, N. D.
Finlay McMartin, Claremont, Minn.
John B. Armstrong, Hannaford, N. D.

Hereford

J. H. Whitcher, Valley City, N. D.
Jeremiah Growley, Broncho, N. D.
Cargill & Price, LaCrosse, Wis.
R. W. Dickey, Ellendale, N. D.
H. F. Eaton, Oakes, N. D.
Massingham & Cosgrove, Harmon, N. D.
A. Edmunds, Caledonia, N. D.
A. J. McInnes, Dazey, N. D.
F. B. & H. W. Gannon, Ellendale, N. D.
R. A. Hasse, Tappen, N. D.
H. Jacobsen, Fingal, N. D.
H. J. Johnson, Oakes, N. D.
Movius Brothers, Lidgerwood, N. D.
J. C. Mills, Hannaford, N. D.
W. L. Richards, Dickinson, N. D.
Roach, Wold & Keck, Rutland, N. D.
Whitcher Brothers, Valley City, N. D.
E. O. Tade, Wheelock, N. D.

Aberdeen-Angus

R. A. Candor, Cogswell, N. D.
O. S. Chase, Mott, N. D.
G. W. Foogman, Grafton, N. D.
Geo. L. Lillie, Sergius, N. D.
Geo. A. McFarland, Valley City, N. D.
M. F. Merchant, Ellendale, N. D.
Frank Sanford, Valley City, N. D.
Stern Brothers, Fargo, N. D.
N. Upham, Grafton, N. D.
L. H. White, Cogswell, N. D.
Eastgate Brothers, Larimore, N. D.
J. W. Reedy, Beresford, S. D.
Barnes & Shaffer, Wahpeton, N. D.
L. A. Wood, Valley City, N. D.
C. M. Perry, Aldrich Av., Minneapolis.

Galloway

G. J. F. Teal, Cooperstown, N. D.
W. C. Clark, Gladstone, N. D.
G. W. Dycon, Cooperstown, N. D.
Andrew Laughlin, Lisbon, N. D.

Red Polled

O. A. Austin, McVillie, N. D.
J. H. Bacon, Grand Forks, N. D.
J. W. Martin, Gotham, Wis.
J. A. England, Kenmare, N. D.
C. G. Falt & Son, Monango, N. D.
A. H. Laughlin, Lisbon, N. D.
R. E. McHugh, Dresden, N. D.
J. W. Mitchell, Wheatland, N. D.
H. M. Tucker Courtney, N. D.
C. A. Hall, Cooperstown, N. D.

Jerseys

J. H. Bosard, Grand Forks, N. D.
J. A. Colby Gardner, N. D.
Rev. S. Currie, Park River, N. D.
J. P. Ebersole, Upham, N. D.
M. N. Johnson, Petersburg, N. D.

SWINE

Poland China

C. F. Gummert, Renville, Minn.
Geo. H. Smith, Amenias, N. D.
O. R. Aney, Wilmot, S. D.
W. W. Brown, Amenias, N. D.
E. C. Butler, Cooperstown, N. D.
Winn Brothers, Redwood Falls, Minn.
John Donnelly, Grafton, N. D.
S. Fletcher, Matteson, N. D.
O. S. Jones & Co., Madison, S. D.
L. A. Knoke, Willow City, N. D.
Axel W. Peterson, White Rock, S. D.
A. S. Hawkes, Waseca, Minn.
E. H. Schutt, Fairmount, N. D.
E. J. Cowles, West Concord, Minn.
J. A. Englund, Kenmare, N. D.
J. L. South, Casselton, N. D.
C. E. Stowers, Wheatland, N. D.
Herbert Willard, Glyndon, Minn.
J. K. Campbell, Slayton, Minn.
John DeVaney, Waverly, Minn.
H. H. Bonniwell, Hutchinson, Minn.

Berkshires

J. H. Bosard, Grand Forks, N. D.
W. S. Corsa, White Hall, Ill.
J. O. Hertsgaard, Kindred, N. D.
John Stafford, Crystal, N. D.

Yorkshires

T. H. Canfield, Lake Park, Minn.
Frank Willis, Marletta, Minn.
G. A. Forgeron, Rosemount, Minn.

Duroc-Jersey

Fargo Edgewood, Fargo, N. D.
W. E. Olive, Worthington, Minn.
Riverview Farm, Mandan, N. D.
L. L. Butler, Webster, S. D.
E. W. Smith, Buffalo, N. D.
J. E. Sparks, Jr., Armour, S. D.
L. H. White, Cogswell, N. D.
A. K. DeJong, Marion Junction, S. D.
S. O. Mason, Red Wood Falls, Minn.

Chester White

James Austin, Hannah, N. D.
P. M. Burke, Crystal, N. D.
C. E. Budlong, Albert Lea, Minn.
C. A. Gallup, Fairmount, N. D.
A. E. Thompson, Hannah, N. D.
L. C. & V. A. Hodgson, Luverne, Minn.
James Fisher, Eastman, Wis.

SHEEP

Oxford Down

J. C. Mills, Preston, Minn.
Eastgate Brothers, Larimore, N. D.

Shropshire

C. E. Stowers, Wheatland, N. D.
Chandler Brothers, Kellerton, Iowa.
Geo. H. Smith, Amenias, N. D.
Geo. McDerrrow & Sons, Pewaukee, Wis.

POULTRY BREEDERS

White Plymouth Rocks

J. A. Englund, Kenmare, N. D.
Eastgate Brothers, Larimore, N. D.

Live Stock Department

PROF. W. B. RICHARDS, Editor

THE SHORTHORN FOR NORTH DAKOTA

By E. C. Butler, Cooperstown, N. D.,
Proprietor of Greenview Stock
Farm

When the North Dakota Farmer kindly asked for something in regard to shorthorns, they said, "Use the subject as you wish." And the query is, what shall it be.

Of historians of the breed we have the late W. R. Warfield with his years of experience in breeding, the results of which he has given us in his "Cattle

or their grades everywhere cattle are produced.

Early in the development of the northwest they were introduced into the country and widely scattered. In the year 1875, H. F. Brown brought to Browndale the 2nd Rose of Racine, and H. R. Clark brought to Medowlawn Caroline 6th and Princess of Exford 7th. If it were possible to write a history of the decedents of these cows, and to locate there offspring as they today exist, how widely would we find them scattered! Their value could not be estimated. But we would

brute creation can be found than a Choice Goods, Whitehall Dalton or Young Nomanee. When we meet with some of the older breeders of shorthorns and listen as they tell of their battles royal, when such sires as Gay Monarch, St. Valentine and others met in the show ring, with the great producing dams of those days, and see their interest in the herds of the present, we know they are still loyal to their first love, and that the shorthorn has lost none of his popularity.

There is something of a fascination in watching the development of a young herd sired on different lines, waiting for their fall development, trying to analyze the different blood lines, hoping for the best results from your undertaking, yet always trying to produce better results. "Progress and Improvement" should be our motto.



Stock Raising on the Line of the Great Northern

Breeding," a book that will long be read by old lovers of good cattle, or the "History of Shorthorn Cattle" by Saunders, a book that is complete in itself, which traces the breed from its earliest home on the banks of the river Tee, in the county of Durham, England, until today, when it is known in every civilized country in the world. It is a pleasure to a breeder of the Red, White or Roan to look back to the past and to think of the wonderful development of the breed today; and, as we think of the future possibilities of American agriculture, to know how closely they are allied to our future prosperity and to think of the place they will always occupy in the markets of the world.

In numbers they exceed all other breeds, and some enthusiastic patrons claim they exceed all other beef breeds combined. This may be an exaggerated statement, but we see shorthorns

surely find that they had exerted a great influence for good in helping to develop the stock industry of the new northwest.

The prepotency of the shorthorn is acknowledged as almost supreme. They have been bred to a type for so many years that they leave a marked impress on all herds wherever used with such marked improvement that they continue there popularity.

For by their environment they can be developed along any lines desirable. In New York, Ohio and Pennsylvania they are among the most profitable of dairy stock, while in the corn belt and on the range they have been developed along the beef lines and are among the best of producers. For beauty or profit they are unexcelled, and in the world's show rings they occupy the place of the born aristocrat.

What more noble specimens of the

We should continue in our strife for better stock and more of it in North Dakota; and everyone should pass the death sentence on the scrub and see that it is put into immediate execution.

In the rapid development of the live stock industry in North Dakota and our increasing need for diversified farming, we should try to lay our foundation well and start with the best of blood that we can procure in all lines of stock breeding.

By the use of a good pure bred sire of any breed, horses, cattle, hogs or sheep, by the second cross we have increased the value of our holding fully fifty per cent.

The market reports from St. Paul or Chicago tell the story of how badly North Dakota needs good blood in her herds.

As a breeder of shorthorns for fifteen years, watching their development in

our cold climate, knowing how well they adapt themselves to our surroundings, and that for milk or beef they are first class, that they can always fill any place assigned them my earnest wish is: may their numbers increase and may the shorthorns continue always in the lead as they are today without a peer.

DAIRY EXCELLENCE

By Prof. C. F. Curtiss

In considering this proposition, it will be well to begin with the breeding of the cow. The first question that arises is what breed? I would answer. "Any good breed that meets the existing requirements." Dairy excellence in varying degree is characteristic of all breeds, and unfortunately the lack of dairy excellence is altogether too common, even in the best breeds. For over a hundred years it has been a crime prohibited by law to import into Jersey island any foreign cattle. The Jersey breed has been kept absolutely pure and bred and developed for the distinct purpose of milk production for over a century, and yet even in this distinctly aristocratic breed there are many inferior representatives. I mention this to emphasize the importance of careful selection in breeding dairy stock. In no class of farm stock are the results of breeding so uncertain, except perhaps in the production of speed and high class driving horses. Results that are at the best uncertain even under careful and systematic methods are necessarily much more hazardous under a careless system. About a year ago I spent three days on Jersey Island, the home of the famous breed that bears its name. My visit was so timed as to enable me to attend the annual show of Jersey cattle of St. Helliers. One day was devoted exclusively to the butter test of thirty cows, conducted on the ground in a building admirably adapted for the purpose, where the cows were housed, fed and milked, and the product carefully tested and the butter churned and worked by young lady students of the traveling dairy school.

This feature of the show was conducted in an ideal manner, except that the churn instead of the butter fat test was made the final arbiter of results. The next day was devoted to a study of the cows in the show ring as their merits were being passed upon by a committee of expert judges who scored each animal by a score card. After the work was completed the score of every prize winner and some of the others was posted in a conspicuous place for the information

of the public. The third day I spent driving over the island visiting prominent farms and inspecting the best herds, in company with Mr. John A. Perree, secretary of the Jersey Island Cattle Society, and Mr. Charles Nicolle, an expert judge and buyer of export cattle, a man who is said to know every good cow on the island. This, however, is not a very difficult task, as the extent is only about four miles in width by twelve in length, yet this little island has a population of 54,000 inhabitants, and the cow and potato patch are the chief sources of revenue and enable the tenant farmer to pay rents ranging from \$35 to \$60 per acre.

Imagine my surprise on the second day of the fair when I failed to find a single cow entered in the butter test accorded a place by the judges in scoring. And on the other hand, not a man owning any of the prize winning cows in the show ring, many of which were fresh in milk, had cared to take his chances with the plainer and rougher looking cows competing in the dairy test. I closely questioned some of the leading breeders and officials, but did not succeed in getting what appeared to me a satisfactory reason for encouraging two classes of cows—one for practical utility and the other for delicate form and beauty.

DAIRY FARMING

A great advantage in dairy farming is the fact that a sure and constant income can be relied upon. It

MILK CANS ROB YOU

Look through a microscope at milk set to cream in pans or cans and you'll see how they rob you. You'll see the caseine—the cheese part—forming a spider web all through the milk. You'll see this web growing thicker and thicker until it forms solid curd. How can you expect all the cream to rise through that? It can't. This



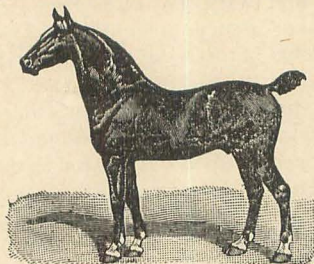
caseine web catches a third to half the cream. You stand that loss just as long as you use pans or cans for they haven't enough skimming force to take out all the cream. But, just the minute you commence using a Sharples Dairy Tubular Cream Separator, you stop that loss.

Sharples Dairy Tubular Cream Separators have 10,000 times more skimming force than pans or cans, and twice as much as any other separator. They get all the cream—get it quick—get it free from dirt and in the best condition for making Gilt Edge Butter. Caseine don't bother the Tubular. The Tubular is positively certain to greatly increase your dairy profits, so write at once for catalog R-135 and our valuable free book, "Business Dairying."

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Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

is an important matter in farming, as in other business, to be able to rely with certainty on a regular income. Tho in this business there may be variations from different causes of just what that income may be, yet with the cows it is sure to be something, every month. Milk, cream, butter or cheese are cash products whenever or wherever sold. Consumers are always in want of these products and always will be, so there always is a ready market that never can fail. The dairy farmer can count on all this with a certainty that can never fail him.

Another feature of great importance is that the returns from the products of the cow are not only certain to be realized, but they come often. She furnishes her milk today and whatever the form it is turned into, in a month's time the cash is returned for it. This to a man of limited means is a great advantage. In the production of crops for sale the returns come in but once a year

for the reason that the land produces but a single crop each year. In the growing of stock no money is returned till the stock is sold. In the production of fruit the trees must first be grown and then but a single crop a year can be realized. In comparison, therefore with any of these farm products from which the income is received the receipts from the cows carry a great advantage.

The advantages of dairy farming are manifest in every neighborhood and on every farm where it is a leading business. The farmer always has some ready money. His buildings are kept in good order. His equipment for carrying on his farm work is on a liberal scale. His cows are kept in good condition the year thru. His bills are kept paid up and his credit is good. All this is possible for the reason that he always has some money coming in surely and regularly from his dairy. There is no other line of farm business that is so sure and so reliable, year after year, as a well-managed herd of cows. This fact is stamped on every farm where the business is carried on.

In speaking of the favorable opening held out to the farmer thru the dairy business the New York Produce Review in a recent issue gives it the following endorsement.

"We do not know any industry that offers a well trained young man, or an older man, better immediate returns for his labor and a brighter future, than is offered today by the dairy industry." This is an endorsement that any farmer may accept with confidence. It is borne out in the success of dairymen in our own midst.—Maine Farmer.

RENOVATED BUTTER

Manufacturers of renovated butter, says the New York Farmer, will not be able to hide their light under a bushel since August 15th, when regulations issued by the bureau of animal industry went into effect. One requirement is that manufacturers shall keep a special tax certificate, costing \$50 annually, in a conspicuous place in their factories; another is that over the door of each factory shall be placed a sign, in letters not less than three inches in height, giving the proprietor's full name, his business and the registered number of his establishment, with the words "Manufacturer of Renovated Butter" looming like a thundercloud on the horizon.

Every package of butter must bear special stamps, representing a tax of one cent for each pound of the product it contains. Each manufacturer's package containing 10 pounds or more of the

28 Years Of DE LAVAL CREAM SEPARATORS

This is the record of the DE LAVAL machines, which is of itself a mountain of strength beside which the records of all would-be attempting cream separators are but mole-hills.

It means a feeling of confidence in the purchase of a cream separator to know that you are putting your money into the machine which was FIRST and which has LED in every single step of cream separator IMPROVEMENT, all imitating machines simply taking up such old features as expiring patents leave open to them.

It means something in putting your money into a cream separator to know that you are not only getting the machine which will DAILY give you the best results, but one of which there are already many thousands an average of TWENTY YEARS in use, while the average life of imitating machines is not over five years and most of the so-called "cheap" machines of today are not likely to last two years.

A De Laval catalogue, to be had for the asking, must convince you that De Laval machines are not only the best but actually the cheapest.

THE DE LAVAL SEPARATOR CO

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BOSARD FARM JERSEYS

LOTTIE MELIA ANN'S KING,

Son of the Great Fifteen Thousand Dollar Bull, Melia Ann's King, has Ten Tested Sisters, Among Whom Are,

DOVE MELIA ANN, who at three years old gave 1705 lbs. of milk in 42 days, about 43 lbs. per day, and made 18 lbs. 11 oz. butter in a week,

ELOISE MELIA ANN, who milked over 40 lbs. per day, and made 17 lbs. 12 oz. butter in a week, at three years.

MELIA ANN OF LONGVIEW, who as a two-year-old, milked 45 lbs. in a day, and made 15 lbs. ½ oz. butter in a week,

LOTTIE MELIA ANN, his dam, has a record of 21 lbs. 2 oz. butter in a week, 9250 lbs. milk in a year, 25120 lbs. milk in three years, and is the dam of three tested daughters.

PEER'S SURPRISE, a sister of the sire, holds the world's record for both milk and butterfat in an authenticated year's fat test; 14452.2 lbs. milk, 643.61 lbs. fat, or 769 lbs. butter.

EMMA'S ROWENA, an inbred Melia Ann, stands second to Peer's Surprise, 10383 lbs. milk, 760 lbs. butter.

SOME OF HIS SONS FOR SALE.

Address, J. H. BOSARD,

GRAND FORKS,

NORTH DAKOTA

solid product must have the words "Renovated Butter" sunk in to the upper surface of the substance in gothic letters not less than one-half inch square, and prints, bricks and rolls must be similarly marked, the letters being depressed not less than one-eighth of an inch.

All coverings or wrappers must also be marked with "Renovated Butter" in dark colors on a light background, with three-eighth-inch Gothic letters, the words to be the only mark upon the surface where they appear. No further preventive of deception has yet been devised.

PREMIUMS FAREWELL

"Thus far year's premiums have been paid,

But now this settlement lost in name:
Fine butter will receive its own reward
and aid—

It's up to under grades to build their
fame.

High premiums in the past were paid
For butter that could never make the
grade." —Grout.

THE GRADING UP PROCESS

The stallion owner could do much good by decrying the practice of breeding from a mare of different blood than that of the stallion. If the mare is rich in the blood of a particular breed, further progress in the grading up process is instantly stopped by mating her with a stallion of a different distinct breed. The filly foal from such mating will be a cross-bred and, while such animals often are good sellers, they practically are useless for breeding up to purity of blood so cannot profitably be used to carry on the up-grading work. If, on the contrary, the grade mare once more had been bred to a stallion used in her up-grading, her filly foal would be one step nearer purer blood than the dam, and if the filly, in turn, were bred to a stallion of the same breed as its sire the offspring would still farther progress in purity of blood and all of the breed attributes accompanying its possession.

This is the process we advocate for general practice thruout the state. The stallioner will help on the good work if he unselfishly accepts as mates for his stallion only those mares that are of like blood or graded up to a certain degree with the blood of his breed. If he allows his horse to mate with a mare of alien blood he hinders the progress of horse breeding in Wisconsin and he should be philanthropic enough to educate his patrons to mate their mares with stallions of suitable breeding, so that,

CREAM IS MONEY

The chief reason you want a separator is to get more cream—more money—out of your milk. Of course you want to get the most, and you naturally want the separator that gets the most cream.

U.S. GETS ALL THE CREAM

Holds World's Record for CLEAN Skimming

Marshfield, Vt., Feb. 2, '07.
I bought one of the—machines, but after running it a little while I found it was not skimming clean. I had it tested at the creameries here and found it to test 1 per cent, and I could not stand this so exchanged it for one of the U. S. machines, and find that if I had given the other machine away I should have made money by so doing. I like the U. S. very much.

ALMON TUCKER.

The U. S. is also the simplest, strongest, safest separator. Only two parts in the bowl—easy to wash. Gears turn in oil and run surprising easy. Lasts for many years with ordinary care.

Let us tell you ALL about it. It's money in your pocket right away to know. Just write, "Send me new Catalog No. 127." The pictures tell the story. FREE TO YOU. Write today, addressing the

VERMONT FARM MACHINE CO
Bellows Falls, Vt. 472
Eighteen Distributing Warehouses



Aberdeen Angus Herd For Sale.

On account of professional duties I must close out my valuable herd of Angus. Herd has been headed by that royally bred imported prize bull, Prince of Auchterarder, one of the best stock getters of the breed. All young stock sired by him.

At five leading fairs this year my Bonnie Brae herd has won more blue ribbons than all its competitors combined.

Seventy head to choose from, Thirty-five breeding cows, twenty choice heifers, ten young bulls, the head of the herd and several calves.

Will sell in lots to suit and make prices that will move them. Or, will exchange all or part of them for North Dakota land.

GEORGE A. MCFARLAND, Valley City, N. D.

HEREFORDS FOR SALE

Three Good, Young, Registered Bulls.

COLE & LORD,

Egeland and Cando, N. D.

THE SILVERDALE FARM

A. J. McINNES, Prop.

PURE BRED CLYDESDALE HORSES

PURE BRED HEREFORD CATTLE

YOUNG STOCK FOR SALE.

Dazey, - - - North Dakota

Registered Red Polled Cattle

Young stock of both sexes for sale

C. G. FAIT & SON, MONANGO, N. D.

LOOK YE HERE

Go to any of our dealers and buy a package or pail of Guarantee Stock Food, take it home and use it according to direction, to any animal for a test. Pick out your worst specimen on the farm if you like, and after a fair trial should you not be fully satisfied with results, let us know and we will return the money.

Guarantee Stock Food

contains ingredients that will surely benefit your animals, not only while you are feeding but also after you quit feeding. This is no theory only, but facts founded on knowledge, experience and practice, and can be verified by thousands of our customers.

Guarantee Stock Food Company,

GRAND FORKS,

NORTH DAKOTA

HELLENDALE SHORTHORNS

Fifty head of High Grade Heifers, 7-8 and better, for sale. All bred by our best bulls, at prices that will enable any farmer to start a No. 1 herd for little money.

The best chance for a good thing ever offered N. D. Farmers. For prices and other information write to J. B. Power, Power, N. D.

in each case, the upward grading process may be continued.

To make this matter plainer, it may be suggested that the owner of a pure-bred stallion of any one of the recognized breeds should to the best of his ability dissuade the owners of mares from breeding to stallions which in blood are different from the mares. If a mare, brought for service, is seen to be of a breed different from that of the stallion the stallioner should persuade her owner to take her to a stallion of her own breed or blood, and in so doing, he will encourage the grading up of our horse stock.

By acting contrary to this plan the owner, even of a pure-bred, sound, stallion of fine individuality, quality and utility, actually is retarding the progress of horse breeding. On the other hand, did he always use his horse to a suitable, sound mare of like blood the upward grading process would go on apace and result eventually in a grand stock of practically pure-bred, sound horse stock in Wisconsin in place of the present sorry aggregation of nondescripts, misfits and mongrels.—A. S. Alexander in Bulletin 141, Wisconsin Experiment Station.

THE GREAT NATIONAL DAIRY SHOW

Offers Large Cash Prizes to Breeders of Dairy Stock and a Splendid Place for Exhibiting Their Cattle.

The live stock premium list for the Second National Dairy Show, which will be held October 10th to 19th, 1907, at the Amphitheatre, Union Stock Yards, Chicago, is now ready for distribution. There is over \$7,000 to be distributed, in cash prizes, besides medals, cups and diplomas.

The National Dairy Show offers one of the best places in the world for exhibiting dairy stock, and breeders who are anxious to make known the merits of their herds should not fail to be present. No state fair gives the opportunity for meeting breeders, dairymen and purchasers of dairy cattle that is offered by the Second National Dairy Show. It is a place where practical, up-to-date dairymen gather from all parts of the country to study modern methods of dairying and to select cattle for the improvement of their herds. Those who exhibited at the first National Dairy Show could not begin to supply their customers with cattle. This year the Show will be much larger and better, and greater opportunity will be given to breeders for making known the merits of their cattle and to meet men who are anxious to purchase a high grade of stock.

Men who want to get in touch with

the best purchasers of the country cannot afford to let this Show go by without making a good exhibit. There will be an opportunity for disposing of cattle at public sale, for there will be held on October 14th, 15th, 16th and 17th, auction sales of registered cattle. Never before in the history of dairy cattle has there been offered a better or more prominent way of bringing pure-bred stock before the American farmer and dairyman.

For further particulars and premium list write to Mr. E. Sudendorf, Room 307, 154 Washington St., Chicago, Ill.

If you will favor us with a remittance for your subscription, either 50 cents for one year, or \$1.00 for three years, we will give you absolutely free a year's subscription to FARM & HOME, a semi-monthly farm paper of the highest grade. Do it now.

AUCTIONEER

PEDIGREED LIVE STOCK AND LARGE FARM SALES.

REFERENCE: Any pure blood breeder in the Northwest.

Graduate National College of Auctioneers.

FRANK H. HYLAND,

Devils Lake, - - - - - North Dakota

FOX TERRIERS, BEAUTIES.

(Thorobred) DUSKY TRAP STRAIN,
Colors Black, White and Tan,
Buff and White,
Tan and White,

"DEAN FARM"

Box 182, Mayville, North Dak.

Registered Black Percheron Horses and Red Polled Cattle.

Yamagata, 40966, 1st premium, gold medal and championship at N. D. State Fair 1906.

Zip 13342, herd bull, first prize winner and sweepstakes N. D. State Fair 1905.

YOUNG STOCK FOR SALE.

CENTER LANE STOCK FARM,

Kenmare, N. D.

WOOL

YOU ARE SAFE

In shipping your wool to us because if you so order we keep your shipments separate until you receive our settlement and are satisfied.

DON'T SELL YOUR WOOL

Before you get our prices. It will surely pay you to write for them

Albert Lea Hide & Fur Co.,
224 Market St., Albert Lea, Minn

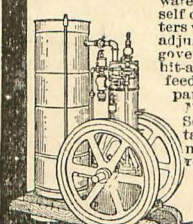
WHITE

PORTABLE AND STATIONARY GASOLINE ENGINES

Vertical and horizontal designs, oil or water cooled, four cycle type, self cleaning adjustable igniters with early and late spark adjustable automatic ball governor of throttling or hit-and-miss types, sight feed gasoline vaporizer. All parts interchangeable.

More than 100 designs. Self contained or with tanks detached. Economical, durable and easily repaired. Catalogue free.

Globe Iron Works Co.
Menomonie, Wis.
Box 74



ENVILLA STOCK FARM,

COGSWELL, N. D.,

200 HEAD REGISTERED ANGUS CATTLE—Calves, yearlings, bulls and cows of the best breeding and lowest prices.

150 SHETLAND PONIES AND GRADES—Any color, size or weight.

300 ANGORA GOATS—Kids, billies and nannies.

250 REGISTERED HOGS—Duroc Jersey, Improved Yorkshire, Hampshire, Improved Chester White and Poland China. Bred gilts and young pigs.

5000 HEAD POULTRY—All varieties: Rocks, Wyandottes, Leghorns, Reds, Brahmas, Orpingtons, Houdans, Minorcas, Games, Javas, Hamburgs and Bantams.

GEESE—Toulouse, Embden, Buff, Chinese, African and Canadian-wild.

TURKEYS—Mammoth Bronze, White Holland and Buff.

DUCKS—Pekin, Muscovy, Wild Mallard, Indian Runner and Rouen.

PEA FOWLS, PHEASANTS, PEARL AND WHITE GUINEAS, FANTAIL PIGEONS—Birds and eggs from above varieties. Some choice cockerels. Baby chicks one day old.

RABBITS, HARES, GUINEA PIGS, SQUIRRELS, COONS, ANGORA CATS, WOLF, FOX AND RABBIT HOUNDS. COLLIE DOGS.

Write us for complete price list of varieties. Remember we won 90 per cent of the Blue Ribbons the last two years at the State Fairs. Order your eggs for hatching, poultry and stock of

L. H. WHITE, Proprietor,

ENVILLA STOCK FARM,

Cogswell, N. D.



Oak Grove Shorthorns.

We have a fine lot of young bulls from 6 to 13 months old, females all ages, open or bred to Baron Violet, Lorne Campbell, or Minas Beau, the stock bull, and all three are prize winners. Prices reasonable. Come and look them over, or write to

DAVID CLARK & SON,

Bottineau or Towner, N. D.

Among the Swine

O. R. ANEY, Wilmot S. D.

A good feeder makes good pigs.

Now is the time to begin putting on the finishing touch.

A pig that has made a good gain thru the summer ought to fatten rapidly.

Where one is trying to make his brood-sows raise two litters per year, the sows should be bred about the middle of November.

It is a good plan for three or four farmers who have only a few sows each, to combine and buy a full blood boar to mate their sows with.

Hogs should be fed early in the evening now so that they can get to bed early, for when they are lying down they make their gains and not when racing up and down the fence looking thru every crack to see if their evening meal is coming.

The high price of feed is likely to cause lots of farmers to sell out their hogs very closely if not to dispose of them entirely. We believe this will prove to be a serious mistake as there is no money made out of any business that is gone into and out again according to the fancy of the owner. It is the everlasting stick-to-a-thing that brings success to most people.

With the high price of feeding stuff comes a stronger demand for well-bred livestock on the farms, and this is especially so in regard to hogs. Farmers in general are finding out that the scrub hog must go, as he is eating up more feed than his carcass is worth on the market; therefore, they are getting a better class of hogs. Some who can not afford to buy well-bred stuff are grading up with a well-bred sire at the head. This is a good move in the right direction and it will be only a short time until the northwest will be furnishing her share of the world's supply of choice pork.

THE FATTENING PERIOD

The time to commence fattening hogs has arrived again and those that are intended for the market should be gotten on a full feed as soon as possible. Now I do not mean that you should try to do this all in one day nor in a week. But what you should do is to increase their

heavy feed gradually day by day until they are eating all the feed that they can assimilate. Some may think it a better policy to defer the fattening period until the pigs have attained a little more growth. This should not be done if the pigs weigh over 75 pounds as they can be made to grow at the same time they are being fattened. This of course necessitates feeding a larger variety of food than it does when they are just being fattened. The fattening period should not extend over eight weeks, and by judicious feeding this can be shortened considerably. It is impossible to get a satisfactory growth on hogs that have too much yard room or pasture to graze over. It is better to confine them to a small dry lot under good shelter and fed as regularly as possible every day if the best results are to be obtained.

SELECTING THE BOAR

This should be the uppermost thought in the minds of the farmer now, as we all remember how many disappointed men there were last year who could not get a boar when they wanted him. It

is a poor policy to defer buying much longer. Many people seem to think that all they have to do is to wait until they need them then sit down and write one or two of the breeders nearest them and take the pig that suits them best. The prevailing high price of pork the past few years has caused many farmers to look out and secure a good boar before the rush begins. Those who neglected

PLEASANT GROVE HERD

Shorthorn Cattle, Poland China Swine

We are making a specialty this season of shipping spring pigs. By shipping when not too large the express bill is lighter. We can supply boars and sows not related. Write us for descriptions and prices.

WINN BROTHERS,
Redwood Falls, Minn.

POLAND CHINAS

We have for sale several choice spring pigs sired by "Giant Perfection" No. 3477, a grandson of Chief Perfection, the 2nd, the greatest hog the Poland China breed has ever produced.
ENTER LANE STOCK FARM,
Kenmare, North Dakota

GREENVIEW STOCK FARM

Has 100 Poland China young pigs, sired by Rockwell Chief, Corwin U. S. 2nd and Prince Corwin. Sows strongly bred of Tecumseh blood. Orders booked now for fall delivery.
Pure Scotch and Scotch Cross Shorthorns, Young and old stock for sale. Call or write if you want North Dakota bred Poland Chinas or Shorthorns.

E. C. BUTLER,
Cooperstown, N. D.

WHETSTONE VALLEY

Stock and Poultry Farm

POLAND CHINA SWINE

SHORTHORN CATTLE

SHORPSHIRE SHEEP

Sale of Cattle, Hogs and Chickens

Having rented my farm I will close out my entire herd of hogs and cattle at bargain prices. Also my fancy poultry. Chickens at \$6. per dozen either breed. Ducks 4 for \$3. Turkeys 3 for \$5. Order quick.

Long Distance Phone.

Express U. S. and Gt. N.

O. R. ANEY,

Wilmot, S. D.

IF YOU WANT GOOD STOCK WRITE US.

to attend to this important matter last year until it was too late had to be satisfied with anything they could get and some even had to wait until their neighbor was thru using his animal and then buy him, pay as much as the man they bought of did and the result was a lot of late spring and early summer farrows that will have to be carried over the winter or sold at a loss. Whereas, if the boar had been purchased early in the season, the sows would have farrowed early in April and the pigs would have been on the market before the drop which always occurs about the first of every year. Farmers are apt to hesitate too long over the matter of a few dollars and at the end take an animal that does not suit them. Where a man has a good bunch of well-bred sows, say eight or ten, he can well afford to pay from \$20 to \$35 for a good boar to mate them with. A little increase in the size or quality of each pig will more than pay for the boar and still the farmer has him left. Besides he will be worth more the second year than he was the first and more the third than he was the second.

It is not profitable to carry a lot of hogs over the winter with the expectation of getting more for them in the spring.

MAPLE GROVE STOCK FARM.

HOME OF THE GREAT J'S PERFECTION,



Winner of first prize at three state fairs. 150 March and April pigs extra large and heavy boned, sired by J's Perfection. He weighed 840 pounds. I have been breeding Poland Chinas 15 years and I have the greatest herd in the northwest. I sell my pigs at farmers' prices and guarantee satisfaction. Come and take your choice or write
W. J. GRAHAM, Howard Lake, Minn.

POLAND CHINAS

75 MARCH AND APRIL PIGS FOR SALE

If you want a boar to head your herd; one with strong, heavy bones and the best back and hames you ever saw on a spring pig, I have them for sale. My pigs have short broad heads and are extra well marked. Write for what you want. I am sure I can satisfy you. Pedigree furnished.
J. S. Bergquist, Dassel, Minn.

WILLOW GLEN SHORTHORNS AND POLAND CHINAS.

The home of the Sweepstake's sow at Interstate Fair, Fargo, N. D., 1907. Herd headed by Chief Perf. 3rd sired by Chief Perf. 2nd the greatest hog the breed has produced. We have for sale choice spring pigs of both sexes by four different boars. Can furnish pigs not related. Have a four year old herd bull a grand son of Nominee and a eight-months old bull calf for sale. Prices reasonable, quality considered. Address

AXEL W. PETERSON,
White Rock, S. D.

WOOD LAWN CENTER POLAND CHINAS



75 PIGS AT FARMERS' PRICES. March and April farrow. They are the kind that grow big and bring big litters. They are sired by UN-DEFEATED CASHIER, weight 750, and PERFECTION KING, weight 500 at twelve months. Pedigrees furnished. Satisfaction guaranteed. Order now to save express. Come and see them or write to
JOHN DEVANEY, Waverly, Minn., On G. N. Ry.

Poultry Department

By MRS. B. F. WILCOXON.

The breed of fowls for the farm is not so much of importance as the way they are bred.

It is not all in having the best birds to breed from. Much depends upon the skill of the breeder in mating and feeding.

Do you know the parents of the best birds you raise? It would be a good idea to keep track of the matter if you wish to gain steadily.

No matter how long they have been in the business they do not all raise prize winners, so don't be discouraged if there are some culls.

In advertising overlook none of your bird's virtues but claim none they do not possess. For to be known as a "fake" is not a desirable asset in your business.

The reason why many people fail in the poultry business is because they do not give it credit for being a business and they expect to succeed with side issue attention.

Don't waste your time crossing pure bred fowls. There are standard bred varieties of all sizes, shapes and colors, and you will have ample field with any of them to try your skill in mating and breeding them to develop special characteristics. Crossing standard bred birds only makes scrubs and there are enough of them now.

Poultry raising in the country is carried on under the most favorable circumstances. The fowls can be allowed their liberty without any loss to the crops. They find a large quantity of their kind of feed that is best for egg production in the insects and worms they hunt out and destroy. They turn into money bushels of grain which would be lost if they did not make use of it, and they can be fed at the lowest possible cost. In raising poultry for any purpose the farmer has the lead. No farm should be without poultry. Have standard bred poultry always it is the best for all purposes, because the standard requires that they be started right. They are bred for results as chickens are fed for growth. That is the only way to get hens that will

lay and pay well. Start in a small way at first, commence at the bottom and work up. Every year the failures in the poultry business are added to at a surprising rate by reason of wrong inducements held forth to those just becoming interested. It is absurd for a man with a limited capital to invest all his earnings in a poultry venture. It has been shown that of those who enter the field in this manner but few remain. It also generally is the case that they have begun with a vague idea of the business into which they have plunged and have before them only visions of future wealth and glory. But changes may be brought about within a short time. A few months later and their position is changed. True it is that this field is open to great development, but this should be along practical lines. What we need is demonstration and less speculation. Begin the business in a small way and learn it step by step. You may find on close investigation that it does not come up to your first expectations; if so, the best thing for you to do is to tackle something else. But if you are satisfied with the outlook, then proceed to win.

There are discouraging times, but persevere and your efforts will be crowned with success. There is a rift in the clouds. The entire road of poultrydom is not strewn with dead and dying chickens. If there is a dark

side to, the work there is also a light. The fact that there is good money in poultry-keeping for those who know how, shows us that there are difficulties to be overcome sufficient to discourage the majority. It is amazing to see how jauntily men assume they can run a poultry plant.

We must profit by failure as well as from success. The knowledge of experience is often dearly gained, but it is valuable and should be used to good advantage in our work. We must study the markets, find out what the people want and produce it as near the demand as it is possible for us to do.

Strictly fresh eggs always demand a premium and stale eggs should never be placed upon the market by the producer. Eggs are always a cash product; they are ready for the market the minute they are laid. There are some farmers' wives and daughters who are making more clear money every year from the intelligent care of a flock of pure bred birds than the husband and father from his general farm work. The woman who finds herself possessed for the first time with a flock of poultry will soon learn that she may spend an afternoon working with her chickens and be just as much amused as if she spent her time shopping, nor will she be nearly as tired as if she were walking around on the hard sidewalks. Instead of being out of pocket (for almost every

woman will buy things she does not need if she chance to see them) she will find that she has added to the possibilities for gain. To be out in the open air and sunshine is to see more real life than to be shut in the house continually.

What promises to be the biggest and most successful poultry shows ever held in the United States will be opened at the Jamestown Exposition, October 22, and lasting ten days. The show will be held in one of the largest buildings at the Exposition, and one that is admirably adapted to the purpose. It

If you will favor us with a remittance for your subscription, either 50 cents for one year, or \$1.00 for three years, we will give you absolutely free a year's subscription to FARM & HOME, a semi-monthly farm paper of the highest grade. Do it now.

SPECIAL OFFER ON STANDARD-BRED POULTRY

Barred. White and Buff Plymouth Rocks; White and Silver Wyandottes and S. C. White, Brown and Buff Leghorns at only \$1.00 each. Eggs from all varieties at half price. Send me your order for either stock or eggs and I assure you that you will be more than pleased.

DAKOTA POULTRY FARM

A. K. Johnson, Kensal, N. D.

Shade Trees and Gardens.

C. B. Waldron, N. D. A. C., Editor.

The complaints that are coming in from all quarters relative to the green cabbage worm indicate that the cabbage is having a more serious time than ordinarily this season, and that the toothsome article of kraut is likely to be a luxury upon most North Dakota tables next winter.

This cabbage worm is an old offender and seems to be getting worse each year. In the old established cabbage growing sections a paris-green spray is used the same as for the potato beetle. If this is applied as a very fine, misty spray, it will adhere to the leaves fairly well, but if simply sprinkled upon the leaves it will roll off without adhering to any great extent. The strength of the solution for this purpose should be

one pound to 200 gallons of water. As the cabbage grows from the heart and the outside leaves are never eaten there can be no objection to using this remedy, unless it might be where the leaves are badly perforated and the poison should pass into the interior of the head. Even then, the amount that is applied to any one head would not be nearly enough for a fatal dose. A person would need to eat about two-hundred heads of cabbage in order to receive a fatal dose of the poison and by that time it might be fairly presumed that his untimely demise was due to something beside arsenical poisoning.

There might still linger in the minds of some a prejudice against this treatment. For such we would recommend

Don't Sell Your Eggs

WHEN THEY ARE CHEAP

Pack them with my new method; will keep two years, and be as fresh as new-laid eggs; no special place required to store them.

Costs only 1/2c per dozen to pack them. Write for circular.

Mrs. B. F. Wilcox, Ft. Des Moines, Ia

OUR BIRDS WIN

EGGS 45 prizes at 3 shows, 15 varieties of Poultry, Ducks, Geese, Turkeys. \$1.25 to \$1.50 per setting. Catalog free.

MANKATO NR'S Y AND P'LTRY YDS., Mankato Minn

S. C. WHITE LEGHORNS

raised on

CHALLENGE POULTRY FARM

are prize winners and good layers. Eggs for hatching \$5.00 per 100. Incubator chicks \$1.50 per 12

A. N. LANGWORTHY, Prop. Dodge Center, Minn

WHITE WYANDOTTE EGGS LESS THAN HALF PRICE. \$1 per 13. \$6 per 100.

Our prices have always been \$2 to \$5 per setting, and the eggs are worth it, but we now have all the chicks we can care for and shall set very few eggs after May 1st. These eggs will be from our finest pens; from big, strong, vigorous, healthy, high-scoring profit-makers, that we have bred up by our system. They will hatch lots of chicks, strong chicks, that will make winners and layers and fill your pocket-book. We will ship promptly. The quality will surprise you.

WEST LAWN POULTRY FARM

E. C. Willard, Prop. Mankato, Minn. 111 Moreland Ave.,

white hellebore and pyrethrum. Use equal parts of these with eight parts of flour, sifting this upon the cabbage early in the morning while still wet with dew. This treatment is very beneficial, when applied two or three times. We have also used hot water with good effect, heating to 175 degrees and then spraying rapidly with ordinary sprinkling-acns. This treatment also requires two or three applications to be effective, as some of the worms are not in range the first time over and escape injury.

Where cabbages are extensively grown it is considered worth while to catch the white butterflies and destroy them, as it is the second brood which works havoc with the cabbage. Since a single butterfly lays upwards of 300 eggs, it will be seen that there is considerable reason in this method of procedure. An active boy with a bug-net made of mosquito netting attached to a short light pole can succeed in reducing the number of these butterflies in a single patch very materially.

When Ordering Any Kind of Garden or Field Seeds Write to the "GRAND FORKS SEED CO."

Handlers of only Northrup, King & Co.'s Sterling Seeds. We buy Timothy, Millet, Flax, Barley, Speltz and Wheat.

THE NIGHT-SHADE OR PIE-BERRY

Mrs. H. F. T., Stanley, N. D.

I am enclosing a plant and its fruit, and will you kindly tell us what it is, and is it edible? It so closely resembles the deadly Night-Shade that I was afraid it might be a poisonous plant.

The reason that I send it is that it grows so plentifully wherever the ground is disturbed, and bears so profusely that it would seem to be a very promising fruit, and it could be made to have any value. Where there are so few fruits and especially wild edible fruits, it seems as tho we should take care to develop any hardy variety.

Its flowers are small and are a purplish white color, resembling the Belladonna but is a very low growing plant, and the foliage very thick and strong, protecting the fruit entirely from the frost.

Answered by C. B. Waldron

The plant submitted, is one of the Night-Shades. It is known to botanists as *Solanum Trifolium*. The potato belongs to this same genus, while the tomato is not far removed. The plant is a native of the western prairie states.

While the fruit can hardly be considered edible, yet it is often used for culinary purposes. One man in North Dakota has made a speciality of growing it for a number of years, applying to it the somewhat enticing if not euphonious name of Pie-Berry.

It is claimed by people who have tried it that the fruit of this plant makes a very good preserve, and doubtless it could be used for marmalades and similar purposes. We have never tried to use the plant ourselves, usually having a supply of other things at that time of the year, but where other fruit is scarce, as it is apt to be in North Dakota, there is no doubt but what considerable use can be made of this plant.

It is very prolific, and seeds itself, so there is little danger but what one will

have an abundant supply, after first getting started. About this time of the year we begin receiving numerous letters of this kind from all parts of the state, and we trust that from the description given by Mrs. Thomas, all of those inclined to make inquiries will recognize the plant.

We have received a very large number of communications from people all over the state relative to the green louse that is feeding upon the grain, particularly upon the wheat. A large number of these letters have been from farmers who imagined that their fields are infested by the "green-bug," which has been so active and destructive in the southwest this season. Among all the samples that have reached us we have found no specimens of the "green-bug." They are instead the ordinary grain-aphis that can usually be found in grain fields almost any season. Their numbers this year are unusually great and naturally cause some alarm among the wheat growers. Of course, this grain-aphis has to feed and does feed in the

same manner as the "green-bug" of the Southwest. Whenever it occurs in sufficient numbers to take a large proportion of the sap of the plant just at the time when the head is filling, the grain becomes shrunk. This reduces both the yield and the grade.

Two years ago we saw grain fields near Fargo that seemed to be materially injured by this insect. As nearly as we could estimate at the time the wheat seemed to be damaged about two grades with a corresponding loss of two bushels to the acre. It may be said, however, that we have seen no fields this year that were so badly affected as those, and we do not consider the likelihood of the material loss from this insect to be very great this year. The later wheat may suffer some, as the insects are, of course, multiplying rapidly at this time.

If you will favor us with a remittance for your subscription, either 50 cents for one year, or \$1.00 for three years, we will give you absolutely free a year's subscription to FARM & HOME, a semi-monthly farm paper of the highest grade. Do it now.

DON'T BE FOOLED

Into buying eastern and southern grown nursery stock that won't grow in the north.

The Hankinson Nursery Company

Sell northern grown trees and guarantee them, replacing free. Write for price list. Grounds and packing house one and one-half miles west of town. Live agents wanted.

Hankinson Nursery Company,

HANKINSON, - - - - N. D.

FARGO SEED HOUSE

FARGO, NORTH DAKOTA.

We wish to buy Bromus, Timothy, Millet, Corn on Cob, Etc

AMONG OUR ADVERTISERS.

It is a pleasure for the publishers to receive complimentary letters from the advertisers of the North Dakota Farmer. It is an evidence that our readers are gaining confidence in the patrons of our ad pages. It is also a sure sign that our readers mention the magazine when they write. Remember that we allow space to no advertiser that we would not ourselves patronize.

We hear a great deal about the wonders of California, but the contrast as shown by the advertisement of the North Dakota Company regarding Cuba is certainly very striking. The vivid illustration of 3500 miles of railway under the control of one man and the 1800 miles of sea under no man's con-

trol is worthy of thought. It will pay those with money to invest to write for the information offered.

It will not be long before the matter of heating will command attention. It is not too early to make inquiries concerning the best means of heating the home, the church, the store and the schoolhouse. The Bovee Grinder & Furnace Works have been carrying an advertisement in our columns for several months. They are a reliable firm and their furnace has claims that will bear investigation. Write them.

From Maine to California hides and furs are sent to the M. H. Redick Hide & Fur Company, who have been long

established and are the only exclusive fur dealers in this state. Stock raisers and sheep men should bear this firm in mind when disposing of their hides and pelts.

Scarcely a freight train pulls out without the well known Hart-Parr Gasoline Traction Engine aboard. Plowing and breaking become a pleasure with such a reliable engine. More Brothers of Wimbledon are responsible for the large number of sales in this state, and they are willing to assume all responsibility.

Richland County will have the grandest fair in her history this month. The management are doing everything in their power to make this year's show most attractive to exhibitors, sporting men and visitors. The enthusiasm awakened last year is having its affect.

We are rather proud of our "Pure Page," first because space on that page cannot be bought by the unworthy, and second, because the cost of the space is less than any other part of the magazine.

There are good markets for those who have seeds for sale: one at Fargo at the Fargo Seed House and the other at Grand Forks at the Grand Forks Seed Company. Sending to either of these houses you will receive fair treatment. Why not patronize the houses that are helping build up North Dakota enterprise?

Our readers are taking advantage of the addresses of breeders found in our Breeders' Directory. We are glad to be mutually helpful to buyer and seller. Every pure bred animal entering the state is a decided blessing to the commonwealth.

Only those who have visited the fairs realize what a large and varied collection of livestock is quartered at the Envilla Stock Farm. If blue ribbons are any criterion, L. H. White is a leader in the show ring and exhibition hall.

Frank H. Hyland is in demand from almost every section of the state. His experience added to his scientific training makes him one of the most successful auctioneers we have at the sales of livestock and farm.

The editor of our swine department informs us that he has stocked his farm and will dispose of his rent of hogs and other live stock. It is probable that he will continue his very practical talks on swine, altho not so intensively engaged in the business.

We call attention to the striking advertisement on the back cover page. The Mound City Paint Company has been favoring this magazine with advertising patronage for a long time. We believe our readers have been attracted by the practical talks this company has given and have made a trial of their excellent paint.

It is seldom we find a firm continuing for 65 years successful business and at the same time keeping abreast the times as we find John W. Masury & Son to have done. With such a paint as contrasted with the "dopes" offered by some mail order houses they well deserve the reputation they have obtained.

Jerseys obtained from the farm of J. H. Bosard will delight the purchaser as they did the many visitors at our state fair. The tests that have been made of the milk and butter fat from his now famous herd are simply marvelous. He offers on reasonable terms some of the sons of Lottie Melia Ann's King.

Few stock raisers in this state have brought to such perfection their breed as has Geo. A. McFarland, of Valley City, his Bonnie Brae herd. We regret to learn that he has decided to give up the business, but we congratulate the stock raisers of North Dakota on being able to secure from him some of his choice Aberdeen Angus cattle. Many a man would do well to exchange some of his land that is uncertain in its yield for cattle that may be depended upon for a sure return.

Altho there are not many in this state engaged in the raising of fancy stock, still the number is constantly increasing. On the Dean Farm at Mayville there are some of the most "aristocratic" little fox terriers that ever interviewed a rat. If you would like to have such a sprightly little pet, write the Dean Farm and receive their literature.

After reading the advertisements of some stock foods, which are claimed to nourish famous racing steeds (but which cannot be sold in this state) one is inclined to wonder at the results from mere stock food, until he learns on good authority that those speedy animals have never tasted the food. The Guarantee Stock Food Co., of Grand Forks, makes very conservative statements, and has the confidence of many satisfied customers.

We have never before mentioned in these columns the excellent qualities of the White Engine, partly because we have not been able to speak sufficiently from personal experience. However, after making use of one of these engines over eighteen months and noting the great superiority it has over its predecessor we most heartily recommend it to any one seeking a gasoline engine that will run, as ours frequently does, from seven in the morning until midnight without one moment's attention. These words are written without solicitation.

"The Separator News" for Autumn, will be ready for distribution September 15th.

About farm separating, and especially about the Tubular separator; illustrated in colors; offers catalogues, "Business Dairying," matchholders, mirrors, pictures.

The News also tells about the piano competition open to buyers of Tubulars during 1907.

The Separator News is free to those asking for it. Three illuminated postcards, will be sent to those who send the names of two other persons, interested in dairying, who do not own Tubular separators. Address, The Sharples Separator Company, West Chester, Pa.

BEEF PRODUCTION

One of the books of interest issued during the year is entitled "Beef Production" by Herbert W. Mumford, Professor of Animal Husbandry at the University of Illinois. This work of 210 pages contains a great deal of valuable information on three general

topics. Part 1 deals with the fattening of cattle for the market. Part 2 deals with breeding beef cattle for the market. Part 3 deals with the elementary principles of stock feeding. For several years Professor Mumford has been engaged in experimental work with cattle, and he has compiled the results of his exhaustive investigations so as to place them at the disposal of the cattlemen of the country.

The price of the book is \$1.50 and it can be had from the author, University of Illinois, Urbana.

CAMPBELL'S SOIL CULTURE MANUAL

Several years ago, considerable attention was given to the so-called Campbell method of soil cultivation, especially in the western part of North Dakota. Later Mr. Campbell came to conduct his experiments more generally in Nebraska, and in the present volume, he has set forth fully his views, as a complete guide for the semi-arid regions, or to quote from his title page.

"The proper fitting of the Soil for the Conservation and Control of Moisture and the Development of Soil Fertility; How Moisture Moves in the Soil by Capillary Attraction, Percolation and Evaporation; the Relation of Water and Air to Plant Growth, and how this may be Regulated by Cultivation."

The book contains 320 pages, is well printed, and contains a great deal of valuable information and is published by the author, H. W. Campbell at Lincoln, Neb.

This new manual seems to be complete and treats in a simple, direct and practical way the problems with which it has to deal. It is the purpose of the farmer to get the most out of the soil, and to raise the largest crops possible on his land. In order to do this the farmer in the semi-arid regions must adopt methods radically different from those where the rainfall is sufficient to insure an abundant crop, in other words, scientific soil culture must be practiced in these regions, and Mr. Campbell has been doing a great deal to solve the problem.

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In 30-lb. cans, one can 10 cts. per lb.; 2 or more cans 9½ cts. per lb.; 12-lb cans, in cases of 72
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OILS, PAINTS, AND PAINT PIGMENTS.

Dr. C. D. Holley, N. D. A. C., Editor.

FIRE PROCESS PIGMENTS

By D. S. Hughes, Chemist Picher Lead Co., Joplin, Mo.

(Continued from Aug. Number.)

A curious claim has been advanced in support of pigments causing formation of lead soap: i. e., that the decomposition was necessary to insure a properly dry and chalky surface for repainting. The truth is the ideal surface for repainting is that left by weathering of paint in which the oil is not decomposed, and this latter paint, in which the oil dies by natural action, of course, lasts longer than that in which the oil is destroyed by internal action. "Oil is the life of a paint" and anything which decomposes it shortens the life of the coat.

Now for the second part of the question: "Is a pigment best used straight or in combination?!" I have no hesitation in saying that a paint for general use should never be applied straight. It is true that under exceptional conditions a straight paint may be used with surprising success. I will cite one instance where almost everything was tried and every paint failed until straight barytes was used, but this only illustrates what exceptional conditions a paint may be required to meet, for barytes for general work can hardly be called a paint at all.

A paint sold for use by any one save a paint expert will yield a higher percentage of successful "jobs" if no one pigment is allowed to predominate. Such a paint may not, under exceptional conditions, wear quite so long, but paints should not be compounded for the exceptional case and in 99 cases out of a 100 a well mixed compound paint will outwear a straight paint.

I am not here to prescribe any formula but only to emphasize the fact that fineness, opacity and durability (that is chemical stability) are necessary in the chief ingredient in a paint, and to show you the chief characteristics of the most important pigments of today.

It may be asked why corroded white lead ("Old Dutch Lead") is still extensively used and used straight if it has the evil properties which I have pointed out. The answer is very simple: during the centuries when this pigment was the only real white paint there was no need of durability and it therefore came to be regarded as a standard. Inventions generally follow a demand for improvement and it was only after modern construction supplied the de-

mand for real paint protection that the fire process paints came into the field. Undoubtedly, also, paints generally had easier conditions to meet in the good old days than today when in every town the air is charged by the active gases from coal. In the mild and equable climates where this paint gained its hold; that is, in central Europe

and England, even an unstable paint might give fair service, altho in passing it might be mentioned that today Corroded White Lead is prohibited by law for public works in France and I believe, some other countries. We are mostly interested in American conditions with a wide range of climatic change; from heat to intense cold and extensive changes in humidity. Here the fire process pigments have to a great extent displaced it and, considering the short time they have been on the market, it is surprising they have so far

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The Best Paint



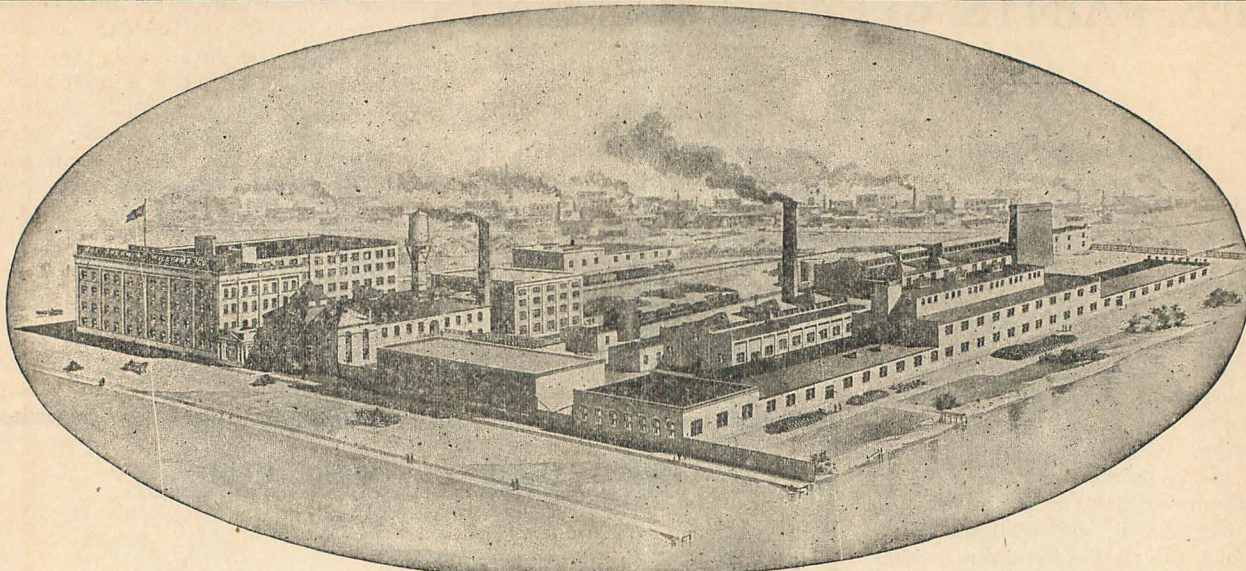
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The illustration above shows our No. 2 Plant at Chicago. We have four other great plants and twenty separate industries connected with them, including linseed oil mills, dry color works, zinc and lead mines and smelters, tin can and box factories, etc., etc.

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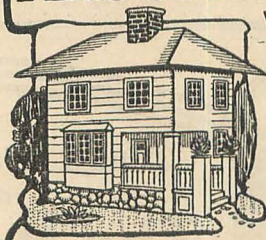


advanced in public favor, for they had to contend against a fixed preference, gained, it is true, not by merit, but by long exemption from competition.

There is still, quite naturally, a popular idea that white lead made by the corrosion process, that is basic carbonate of lead is par excellence the white paint and that any other white pigment is an imitation or substitute for it. It has even been claimed that it is the only pigment which is generally applicable for use straight. In fact about every possible claim is made for it. According to some authorities, it is of particular value because it forms a lead soap. According to others its most striking value is that it does not act on the oil; in other words that it does not form soap. Its fineness is praised by some and still others declare that it is desirable because it is partly composed of rather coarse crystals which build up a coat of requisite thickness. From these contrary declarations it would appear that the lead carbonate of commerce is a somewhat variable substance and investigation confirms this fact. Putting aside all considerations of detail for the moment and examining the *undisputed facts* we find that basic carbonate of lead is chemically unstable, as was indicated by the tests mentioned and if we look thoroly into the matter

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The pigments employed are ground in Pure Linseed Oil by specially constructed machinery which assures uniformity in consistency and color.

They are superior in covering capacity, preservative qualities and durability of finish. These established points of excellence make them at once the safest and most economical paints to buy.

In determining this matter of suitable paints you must remember that it costs as much to cover your house with poor paint as it does to cover it with the best, and that inasmuch as Masury's House Paints defer repainting for the longest possible period, they are the proper paints to buy. Because by their great endurance the original cost is of slight moment. Manufactured by

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Masury's Paints are Produced with:
Pure Carbonate of Lead
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Pure Tinting Colors
Pure Linseed Oil
Pure Turpentine Dryer
and guaranteed to contain nothing else

100 PER CENT DURABILITY

With a record of 65 years is the guarantee that Masury's Pure Liquid House Paints offer for durability and economy.

we will find that it is the most unstable pigment used in any paint. This declaration is startling, but strictly accurate. Indeed, I do not think any chemist will for one moment dispute it. Now we have seen the wearing ability displayed by a chemically stable substance of proper fineness and on further comparing pigments, we find that pigments seem to have value in proportion as they possess chemical stability or inertness. Thus red lead (stable) is good while litharge made of the same elements, but an active compound, will not do for a pigment. Red iron oxide (stable) is a durable paint while the chemically active black oxide is not.

To assume an attitude of ultra conservatism and declare the old fashioned products to possess every excellent feature, and to stigmatize honestly made products as adulterants, cheapness or substitutes is not only intolerant but absurd.

Corroded white lead is a good paint but paint makers know they can improve it by adding other pigments. Zinc oxide is an excellent pigment but it gives best service when it is subordinate in amount to other pigments. Sublimed white lead was invented by a zinc oxide manufacturer as an improvement combining the fineness of zinc, the opacity of corroded white lead

How to Avoid Stale Paint

Use Carter Strictly Pure White Lead, mix with pure linseed oil and dryer, and you will have fresh paint that will look better, wear longer and cover more than any canned paint mixture or substitute for pure white lead.

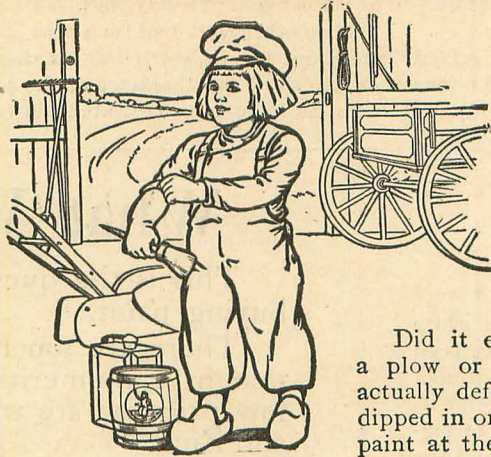
CARTER Strictly Pure White Lead

is every atom paint. None of the clay, chalk, water, benzine, etc., that cause ordinary imitation paints to scale, crack and fade. Gives any desired color. Sold by reliable dealers everywhere.

Send for our booklet, "Pure Paint." Shows six beautiful color schemes, and tells how to properly paint farm buildings. Tells how to test white lead and detect adulterants, and will save you money. Sent FREE.

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CARTER WHITE LEAD CO., Chicago, Ill.
Factories: Chicago — Omaha.



Paint Baths

are given to farming implements nowadays instead of good coats of genuine paint.

Did it ever occur to you that a plow or harrow or wagon was actually defective if it were merely dipped in or washed with an alleged paint at the factory, for the sake of coloring it nicely?

The kind of paint on a wagon or implement is important in the same way that the strength of its bolts or springs or frame is important.

Paint is a great deal more serious thing on the farm than mere ornament—something to make implements and buildings look gay when new. Good paint is the very life of things. A few dollars' worth makes expensive things last and paint is therefore another word for economy.

Does the paint scale off your implements rapidly nowadays? It was not so when manufacturers universally used **Pure White Lead Paint**. You can remedy matters by repainting, not only wagons and implements, but all buildings, with **Pure White Lead and Linseed Oil**; and repairs and maintenance will be a constant expense if care is not taken to see that the lead and oil are pure.

Look for the Dutch Boy Painter on the side of the white lead keg. It is a guarantee of purity, and a protection against getting, against your will, the same kind of imitations which the implement makers so frequently use.

Send for Book

"A Talk on Paint," gives valuable information on the paint subject. Sent free upon request.

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and possessing the further advantage of chemical stability. I could talk at some length on this pigment but I shall not do so lest it seem that I am here in an advertising capacity for my company. My intention has been simply to point out the principles involved in paint making and to describe the character of the chief pigments in use today.

This applies only to the pigment proper and not to active substances such as free acids, occluded gases or soluble salts like zinc sulphate, with which it may be contaminated. Such impurities may produce extensive action by contact action or by cyclic reaction thruout the entire mass of paint. Fortunately, the detection of such impurities is not a difficult matter.

In regard to the action of pigments

proper, it may be fairly said that the tendency of modern painting is to employ mixtures of pigments of differing character; an excessively fine pigment being preferably mixed with a crystalline ingredient, a pigment of high specific gravity with a fibrous substance. And it is only just to remark that the efficiency of these admixtures bears little relation to their cost. The prevalent idea that a cheap pigment is employed necessarily for purposes of sophistication and can be declared a priori to be inferior to one made only of more expensive materials is by no means warranted.

To summarize:

A pigment chemically active should be subordinate in amount to the inert pigments of the coat.

Active or water soluble chemicals contaminating a pigment are exceedingly dangerous.

The pigments employed in a mixed paint should be selected with the idea that the qualities of one should supplement the qualities of the others.

WATER IN PAINTS

A. C. Bulletin.

(Continued from June issue.)

Several brands of commercial white lead usually sold in this state have been examined and reported upon in Bulletin Number 70. In all cases, so far as we have been able to learn, these pigments were sold as white lead, and the public never informed that they contained other constituents.

Michigan Seal White Lead was found to contain 37.51 per cent of white lead and the balance was zinc oxide, calcium carbonate, barytes, etc.

Crown White Lead was composed of 61 per cent sublimed lead and 29 per cent of zinc oxide.

United States White Lead labeled as "United States White Lead is Good White Lead," actually contained no white lead whatever, but among other constituents contained 42.48 per cent of barytes.

Railway White Lead was found to contain 39 per cent of white lead, 33 per cent of zinc oxide, and 20 per cent of calcium carbonate.

Columbia White Lead, 55 per cent of white lead and the balance divided between zinc oxide, barytes, etc.

Longwear Tinted Lead contained no white lead whatever, but is 100 per cent other constituents, about 42 per cent each of barytes and zinc oxide together with small amounts of other pigments.

Bavarian White Lead, quite generally sold in the state previous to the enforcement of our paint law, contains no white lead whatever, altho they advertise the white lead used in Weir's Bavarian Lead is guaranteed by the Old Dutch process and is then pan dried. It did, however, contain 70 per cent of barytes.

American Pure White Lead is totally devoid of such a constituent, and contains approximately 90 per cent of barytes.

It may be added that these white leads like pure white leads are in reality short in weight, and an examination of some of the well known brands of pure white lead showed that even these lacked in physical qualities what constitutes the highest grade of pigment.

Hooker says that a white lead should not contain to exceed $2\frac{1}{2}$ per cent of crystalline or sandy lead, while we have found samples (the results of examination of which are not published) in one

case 2.9, in another 6.2, and one as high as 9.1 per cent of sandy lead.

If no other work had been done under the paint law in North Dakota than to clearly show the character of the products, as have been indicated above as

white leads, and to inform the public of their true character, in the judgment of the writer we have sufficient justification for the enactment of a law such as is now on the statute books of North Dakota.

What Will It Do?

This is the question for you to ask when buying paint.

There are too many paints on the market that have no merits except that they sell at a low price or are made of S. P. Lead or Lead and Zinc.

What you want in paint is

1st.—DURABILITY

2nd.—COVERING CAPACITY

3rd.—APPEARANCE

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The Heath & Milligan Paints

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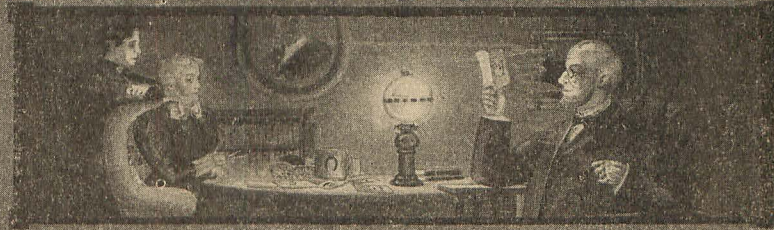
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